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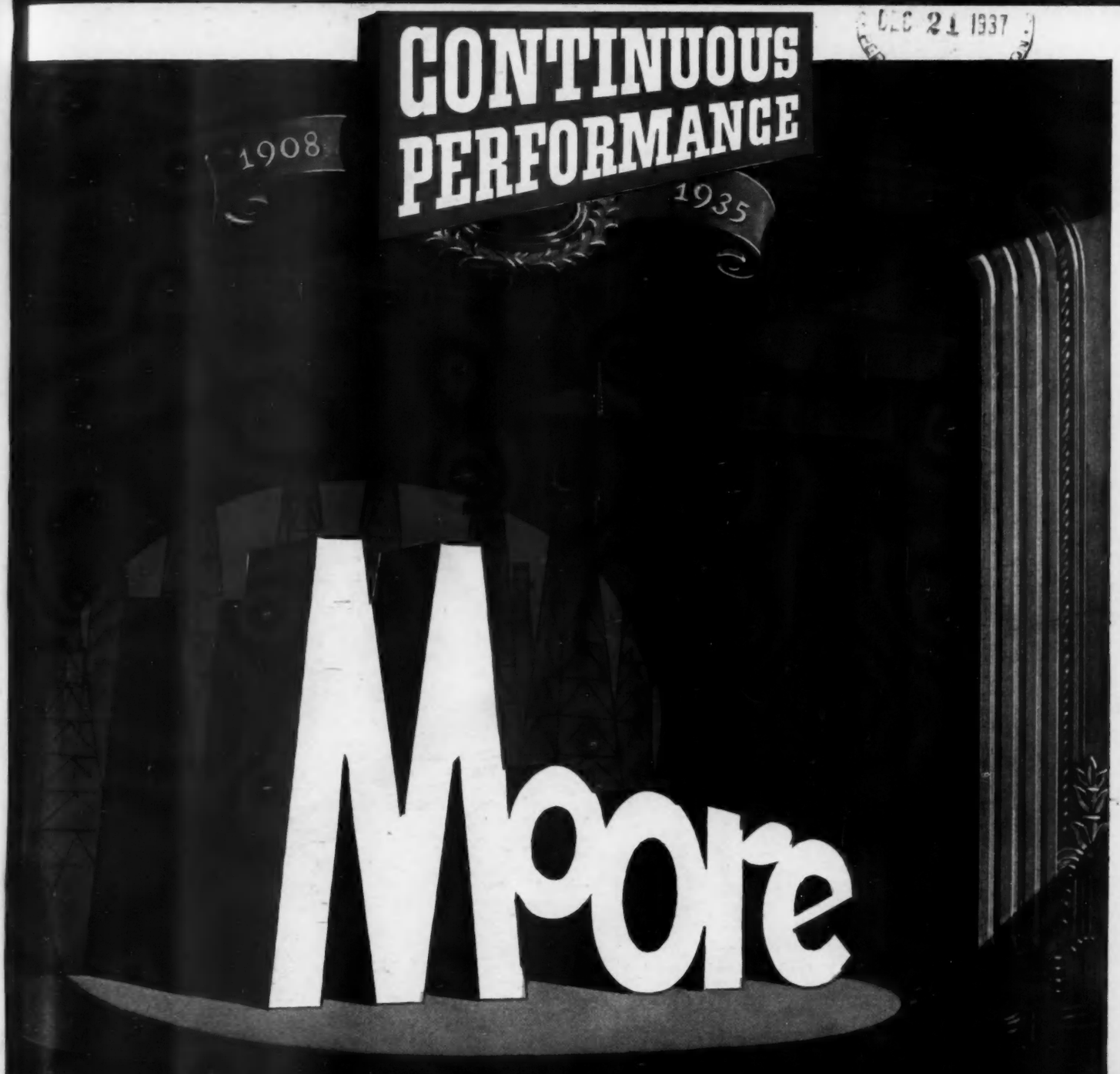

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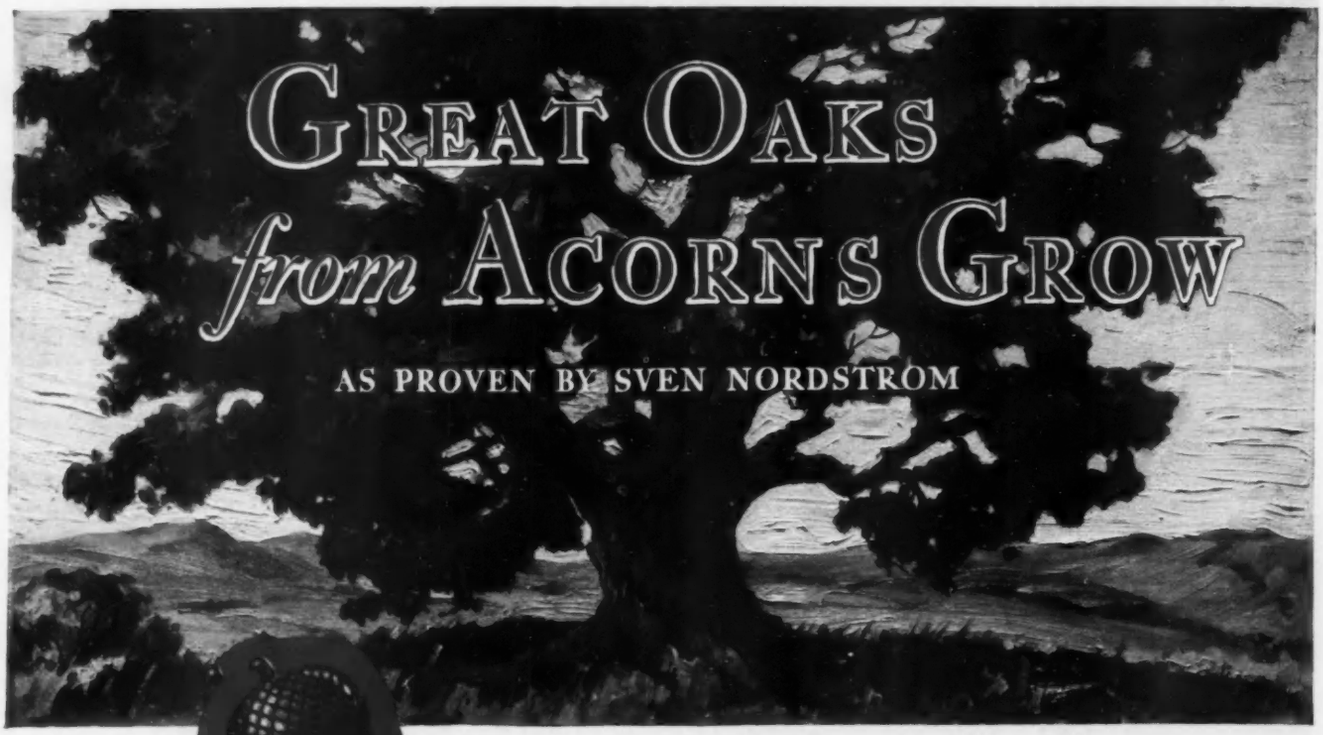

DOWN in Mexico an idea germinated; a simple idea born of necessity. Sven J. Nordstrom, a mechanical engineer, was directing the erection of a filter plant at a mill in the Pueblo of Pachuca, Hidalgo, Mexico. That was in 1914.

At the plant were several tanks for agitating ground ore in cyanide solution—a sort of slurry. Mr. Nordstrom sent a man up to the tanks to open one of the plug cocks to flow some of the slurry down to the filter. The man couldn't turn it. It was frozen tight. No amount of wrenching would free the plug. (Although plug cocks had been used since the days of Pompeii, their operation was limited because of the freezing of the plug to the body.)

"Why," mused Nordstrom, "couldn't a plug-cock be made workable by applying some kind of a lubricant and provide hydraulic means whereby a pressure would raise the plug sufficiently to loosen it?"

Nordstrom pondered over the problem. His success depended upon the use of workable valves. He finally hit upon the idea of a pressure *lubricated* plug cock—an idea so simple that it is inconceivable why it wasn't thought of generations before.

Nordstrom developed the basic design of what is now internationally known as the Nordstrom Lubricated Plug Valve, and thereby solved an obstinate problem. Within two years after the conception of his design he was selling tons of his valves to scores of mines for handling all kinds of corrosive and erosive solutions and abrasive materials.

HOW *a very simple idea, overlooked for decades, revolutionized valve operations in the Petroleum Industry.*

Photo of the original lubricated plug valve built by Mr. Nordstrom in 1914, the first to embody the hydraulic lift principle.

Returning to the United States, Nordstrom became affiliated with a group of engineers and the valve was developed for application to various industries—gas, petroleum and chemical fields principally—where there was a desperate need for valves that would hold the lines under high or low pressure and offer protection against corrosion and erosion. The patented "Sealdport" lubrication principle was a later refinement conceived by Mr. Nordstrom.

The amazing progress of the Merco Nordstrom Valve Company in the past sixteen years or more is well known. Millions of dollars have been invested in these valves. Practically every refinery in the country is Nordstrom-equipped. In the drilling for and producing of petroleum they have become indispensable.

Incidentally, an official of one of the largest, most modern chemical plants in America recently made the following statement: "It would have been impossible to design and build our new plant if Nordstrom Valves were not available. We could not operate our plant efficiently without them."

SVEN J. NORDSTROM
inventor of the lubricated plug valve

So, from a simple idea which occurred to an engineer, a revolutionary change has been wrought. "From an acorn a giant oak has grown." Through all the years since the conception of the valve, Mr. Nordstrom has actively devoted his attention to the development of the product and added many refinements. It is the determination of the Merco Nordstrom Valve Company to continue the progress which has identified the organization since its inception.

The main offices of the company are located at Pittsburgh, Penna., with service offices at New York, Philadelphia, Columbia, Chicago, Kansas City, Memphis, Tulsa, Houston, Los Angeles and Oakland.

The latest Nordstrom Valve

NORDSTROM *Lubricated Plug* **VALVES**
with patented Sealdport Lubrication

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879

LOOK WHAT'S *Inside*

THIS BAKER CEMENT FLOAT SHOE!

IT IS only after you know what materials are used and how perfect is the design that you fully appreciate Baker Cement Equipment.

Examine first the forged shoe, with its exact specifications and accurate machining of threads . . .

Examine the Baker-Formula Concrete, mixed in small batches for complete control of quantities, and with three times the strength of ordinary concrete . . .

Examine the moulded Bakelite Valve and the Bakelite ball, which double-seals against a recessed rubber ring . . .

All Are Materials of Highest Quality

Then examine the secure anchoring of the concrete in the shoe, design and method of anchoring the bakelite valve assembly . . . all insuring STRENGTH beyond the collapsing strength of your casing.

Study the large stream-lined passageway which permits free circulation of cement without destroying the "wash-down" action . . .

Picture how the buoyant Bakelite ball floats in cement slurry or rotary mud, and instantly provides a leak-proof double-seal at the first reversal of pressure . . . all insuring VALVE EFFICIENCY for better cementing jobs.

And then consider how quickly and easily the concrete and bakelite will break up and grind up under the bit, with minimum vibration on the new cement around the shoe and behind the casing . . .

Think how safe you are with materials which circulate out of the hole, and leave the bottom ready for immediate coring below the shoe.

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which means complete freedom from dangerous metal—freedom from all dangerous fragments which prevent coring directly below the shoe, and tend to deflect the bit when drilling is resumed.

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Thus, thousands of machine and equipment builders have learned to rely upon the experience and facilities of the Hyatt factory and field forces as their source of supply for bearings of unfailing dependability. Hyatt Roller Bearing Company, Newark, Detroit, Chicago, Pittsburgh, Oakland.

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THE OIL WEEKLY

ENGINEERING « STATISTICS » THE WEEK'S NEWS

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These BAASH-ROSS CASING PERFORATORS are Positive—Economical—Safe

The Double Star Wheel Perforator punches two rows of evenly distributed slots in one simple operation. The distance between slots is governed by the number of cutting points on the wheels, which ranges from one to five.

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VOLUME 77, No. 7

APRIL 29, 1935

THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

The Changing Panorama

LEGISLATURES in 21 states have sent memorials to Congress asking that the federal gasoline tax be allowed to lapse on the expiration date, June 30, 1935. In addition, more than 250 organizations representing millions of taxpayers have adopted resolutions and appealed to individual Congressmen to end this unpopular levy. Elimination of the federal tax on motor fuel has also been recommended by the Senate Finance Committee and by other Congression committees.

States which have memorialized Congress to repeal the federal tax include: Arkansas, California, Colorado, Florida, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Mexico, New York, North Carolina, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, and Utah.

Thomas Bill

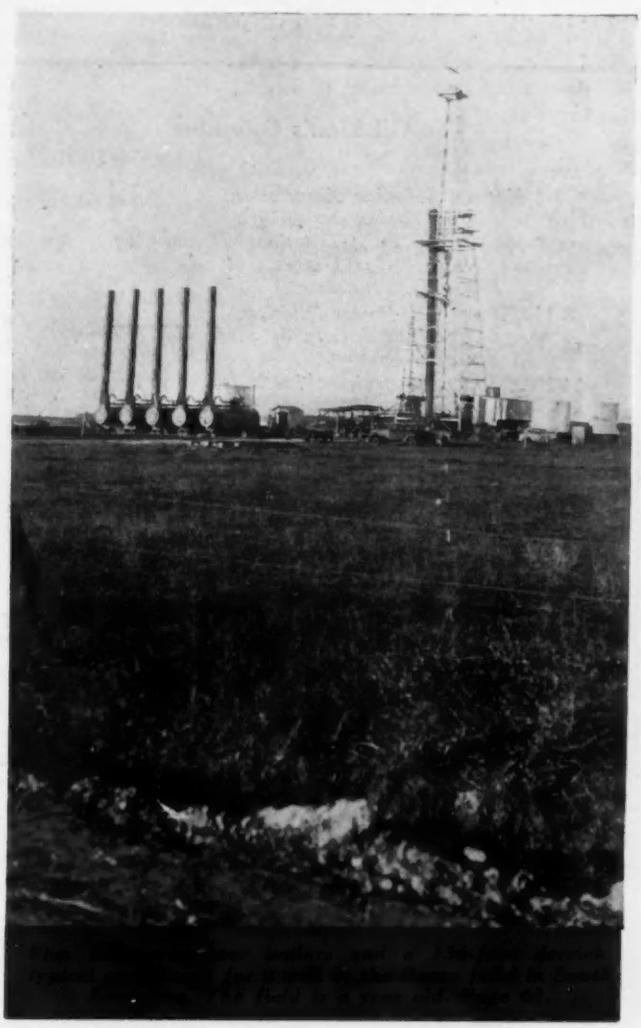
APPARENTLY the Thomas oil control bill is destined to die on the Senate calendar. Changing opinions of the week in Washington made this appear probable. Even should it be passed by the Senate it is not likely to pass the House this term. Furthermore, President Roosevelt is thought to have withdrawn some of his definite support, and now is expected to recommended approval of the interstate compact plan Page 9.

Multiple Drilling

THREE wells have been drilled from one location in the Elwood, California, field. The successful completion of these three producers demonstrates the value of multiple drilling operations under one location. A complete description of the drilling procedure on this interesting work is carried in an article commencing on page 27.

Marine Drilling

DURING the past year there has been an increase in the number of drilling operations conducted in areas covered by water. As a result there has been an enlarged interest in the use of submergible barges for doing this type of work. In this issue G. I. McBride, The Texas Company, tells of the savings that may be effected by this method of marine drilling. Page 19.



Governments Never Build

WHEN before the Senate committee Harold L. Ickes said this in support of the Thomas bill:

"This huge and vital industry, dealing with a limited and invaluable natural resource indispensable to the nation's daily life and protection, needs the impartial and technically trained assistance of the Government in the balancing of current supply with demand."

The Honorable Secretary uses big words in sincere fashion. But a man can be sincere and still be lacking in knowledge as well as wisdom. It is an invaluable resource but it is limited to an extent that no man knows, including all the experts in Washington. There may be sufficient crude oil for a generation; or there may be enough for a century.

Doubt arises on the proposition of the need for the assistance of the technically trained assistance of the government. No government ever has produced an invention of great value to mankind. Individuals are responsible for the technical advance of civilization. Whatever may be done to find additional reserves of oil, to recover oil left behind from current production methods, to convert more of a barrel of crude oil into useable products, to convert shale and coal into motor fuel or to uncover sources of energy still unknown will come about by individuals and corporations.

The Oil Man's Calendar

MAY

1-3 *Natural Gasoline Association, Tulsa, Oklahoma.*

6-9 *American Gas Association, Natural Gas Department, Memphis, Tennessee.*

8-11 *Oil and Gas Power Division, American Society of Mechanical Engineers, Tulsa, Oklahoma.*

14-16 *American Petroleum Institute, Mid-Year Meeting, Mayo Hotel, Tulsa.*

20-21 *National Oil Scouts Association, Corpus Christi, Texas.*

20-23 *National Association of Purchasing Agents—Oil Buyers' Group Session, Waldorf Astoria Hotel, New York.*

JUNE

5-6 *Eastern District, A. P. I. Division of Production, Pittsburgh, Penna.*

20-21 *Pennsylvania Grade Crude Oil Association, State College, Pennsylvania.*

SEPTEMBER

25-27 *National Petroleum Association, Atlantic City, New Jersey.*

NOVEMBER

4-5 *Independent Petroleum Association of America, Annual Meeting, Dallas, Texas.*

11-14 *American Petroleum Institute, Annual Meeting, Biltmore Hotel, Los Angeles.*

Government plays its chief role in protection. When protection becomes control, it hampers individual initiative. Government of necessity is satisfied with the status quo of technical things.

Federal control may come but advancement will not come with it.

Correlative Rights

AN old English law states that a man's property extends "from the stars in the heavens to the bowels of the earth." This law has been recognized wherever and whenever the construction of something above ground or an excavation below ground affects an adjoining property. It never has been legal to build a structure that extends over another man's property, and any type of excavation that extends under a neighbor's land constitutes trespassing.

In the routine of drilling an oil well, it is ordinarily assumed that the course of that well remains under the property on which drilling is started. There is no way to determine whether a regularly completed well draws more oil from the neighbor's property than the neighbor is able to draw through protection and retaliation, but it is conceded that conventional production of a well is legal.

Thus the question of capture enters into the picture, despite recognition that an operator is theoretically entitled only to the oil in place under his lease. Oil is restless and of a migratory nature, and it will be a difficult, if not impossible, task to reach a satisfactory agreement as to the quantity of oil each of a large number of leases should produce.

The present trend toward proration and orderly development is at least a partial recognition of correlative rights, and it will be increasingly difficult in the future to develop a lease and drain a large area before neighbors can complete offset wells as a protection to the oil they rightfully own.

Interstate Compact Progresses

THE interstate oil control compact has many followers and little opposition. Consequently, it seems headed for adoption.

By letter last week Governor Marland of Oklahoma asked President Roosevelt to urge Congressional approval of an oil control compact ratified by five states: Oklahoma, Kansas, Texas, New Mexico, and Colorado. Meanwhile, California is taking steps to "join up" on the compact.

It was indicated in Washington some time ago that the President would join in recommending Congressional sanction of the compact. (It was also indicated that the President might at the same time recommend additional oil control legislation.)

Thomas Oil Bill *Now Is Expected* To Be Shelved

Washington, D. C.—Caught in the Washington maelstrom, where opinions and conditions change overnight, the Thomas oil control bill which a week ago was said to have the backing of President Roosevelt and was sure of enactment now seems destined to die pinned to a Senate calendar.

President Roosevelt, it is now said, will not send a message to Congress asking for control legislation for the oil industry. He may send a message, it is conceded, but if so it will be to ask ratification of the interstate compacts, with possibly a suggestion that it might be wise to provide for a fact-finding body to see how the agreement actually worked out in terms of production.

Deprived of the definite support of the White House and thus seen as not being on Mr. Roosevelt's "must" program, enthusiasm for the measure, never broadly distributed over the general membership of Congress, is seen on the wane.

Because it has in a sense the approval of the administration, the Thomas oil bill will not be kicked into oblivion. Rather it is expected it will be given the silent treatment of delay which is equally as effective but lacks the insulting finality of outright adverse action.

The subcommittee in charge of the bill is now studying the testimony given at the hearings April 16 and 17. Later on, it will make a report to the full committee, probably suggesting some amendments, in which it is expected legislation of some sort will be seen as desirable.

Still later on, the full committee is expected to make a report, probably of a favorable nature if opponents of the measure are assured it will not be rushed through.

When it gets to the Senate, it will be placed upon a calendar. And that may be the end of the Thomas bill for this session.

The congressional program is heavily loaded with "must" legislation—measures which the President insists shall be enacted before adjournment. The Thomas bill is seen as provocative of long debate if ever brought up for consideration, although administration leaders predict it would be passed if brought to a vote. Under the conditions involved in a legislative jam such as now exists, leaders are reluctant to devote any great amount of time to any piece of legislation not of imperative importance.

Even if the bill were passed by the Senate, it is pointed out, the probability of action in the House this session is practically nil.

On the other hand, if the measure is put on the Senate calendar and left there to ripen, it can be passed quickly when Congress reconvenes next January if conditions then indicate necessity for control. And it can be said with assurance that if the state compact idea doesn't work the way its proponents claim it will, the control bill could be put through in a minimum of time.

Advisers to the President are said to have suggested that it might be well to see how the state compact plan works out. There is considerable criticism of the assumption by the federal government of the police powers of the states and there is considerable opposition in some states—particularly Texas—to any further surrender of those powers.

Thus the sidetracking of the Thomas bill in favor of the compacts would soothe that criticism and if control legislation is necessary next year, the President will have ample support for any action he may take.

Study Needed Before Lease Decision Reached

Washington, D. C.—An exhaustive study is seen by the Federal Trade Commission as necessary before any determination can be made whether the lease and agency, lease and license, and other forms of exclusive dealing arrangements violate the Federal Trade or Clayton acts.

This view was expressed by the commission in a letter to Oil Administrator Harold L. Ickes, dated April 9 and made public April 22, replying to a request made by that official March 4 for a formal opinion.

The commission's funds are limited, it was pointed out, and if the Oil Administrator desires an investigation he will have to pay the expenses involved.

Preliminary examination of the question by the commission led to the opinion that the lease and agency contract is probably not illegal, although it does tend "directly to concentrate trade in the hands of such company as thus becomes the principal and the sole supplier of formerly independent retailers, and that these contracts tend to eliminate small distributors and to prevent new distributors from breaking into the field where contracts of this kind are numerous."

The commission has already made a study of the lease and agency method, but believes that investigation of the lease and license plan must be undertaken before any conclusions can be voiced as to such contracts.

New Texas Oil Control Has Little Chance Now

Austin, Texas. — Representative Pat Dwyer of San Antonio has revived his bill to create a new conservation commission to assume the administration of oil and gas in Texas. These duties are now handled by the Texas Railroad Commission.

The bill is in the House oil, gas and mining committee, and at two hearings held last week, members showed little interest and were inclined to let Dwyer talk himself out without taking any final action.

A public hearing set for last Thursday night failed to bring out a quorum of the committee, and was postponed untly April 29.

The bill has no chance to pass in the short space of time remaining.

Texas House Resolves To Investigate Hot Oil

Austin, Texas.—The House of Representatives has passed, by a vote of 85 to 49, a resolution calling for an investigation into hot oil running in Texas.

The resolution was introduced by Representative Augustine Celaya of Brownsville, and calls for a five-man committee to make the investigation during the coming summer. The House limited the expense of the investigation to $1,000.

Celaya said that he would investigate charges which have been made in nationally circulated publications to the effect that some Texas officials have been involved in the hot oil industry.

Senate Passes Bill to Permit Receivership Sales

Washington, D. C.—Legislation under which the sale of the properties of Pan-American Petroleum Company and Richfield Oil Company of California will be made possible was passed by the Senate April 22 and is now before the House of Representatives for consideration.

The bill provides that properties held in receivership under order of a district court may be sold at public auction for less than the two thirds of the appraised value required for private sales.

The two oil companies are in the hands of receivers appointed by the United State District Court.

Southwest Texas *Production Problems Reviewed by Southwest Section* A. P. I.

San Antonio, Texas.—Production and drilling problems were discussed in detail at the spring meeting of the Southwest District of the American Petroleum Institute Division of Production here April 25 and 26. Several hundred members of the organization were present.

The meeting was called to order by W. T. Doherty, Humble Oil & Refining Company, Houston, the chairman. George A. Hill, Jr., vice president for production of the American Petroleum Institute and president of Houston Oil Company of Texas, Houston, delivered the opening address. A. D. Simpson, president of the National Bank of Commerce, Houston, also talked.

An interesting discussion concerning the oil situation in Southwest Texas followed. The general paper was delivered by Thornton Davis, chief geologist for Simms Oil Company at San Antonio. He was assisted by Joseph Dawson of Gulf Production Company, and Charles Row of Sun Oil Company, talking on the Balcones zone and the Government Wells trend respectively.

This portion of Texas has come to the fore during the last year until it now is one of the most important reserves in the country, Davis brought out. He cited such important discoveries as the new field near Pearsall in Frio County, the new areas of the Mirando district, the several important discoveries along the Jackson trend in Bee and Live Oak Counties, the deep wildcat producer of Union Sulphur Company in Hidalgo County, Port Lavaca and Placedo in the Lower Coast country, as being of great value in establishing Southwest Texas as a major oil producing district. The rapid change in the situation is further evidenced by the fact that a complete new picture is presented in South Texas this week by establishment of several important areas which are expected to change the trend of play, he declared.

Technical Sessions

W. V. Vietti, The Texas Company, Houston, presided at the afternoon session, while Chase Sutton, The Pure Oil Company, Houston, was in charge of the Friday morning meeting.

Among the technical papers presented were the following:

"Drilling Barges," by G. I. McBride, The Texas Company, Shreveport, Louisiana.

"Paraffin Production Problems," by C. E. Reistle, Jr., East Texas Engineering Association, Kilgore.

"Corrosion: Its Nature and Effect on Selection and Installation of Production Equipment," by W. S. Crake, Shell Petroleum Corporation, Houston.

"Drill Stem," by H. W. Fletcher, Hughes Tool Company, Houston.

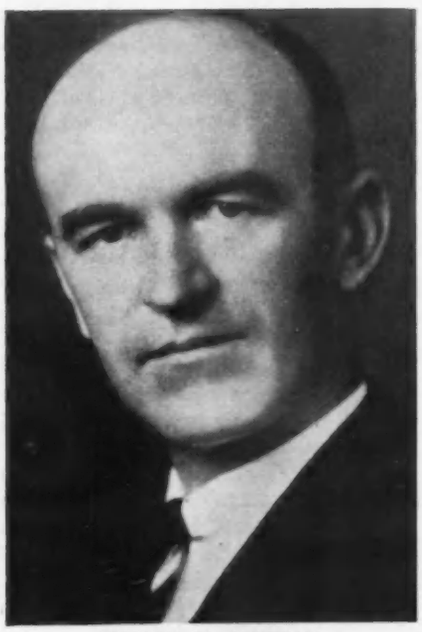
"Blow-Out Prevention and Control," by W. V. Vietti and A. G. Levy, The Texas Company, Houston.

"Progress of Aerial Photography and Development of Photographically Controlled Ownership Maps," by George S. Rice, Jr., Edgar Tobin Aerial Surveys, San Antonio.

"Benefits and Hazards Effecting the Oil Worker," by H. N. Blakeslee, director of accident prevention, American Petroleum Institute, Dallas.

The entertainment program included a lawn and swimming party at the home of Mr. and Mrs. Edgar Tobin Thursday afternoon. Thursday evening, many of the visitors to the convention attended the coronation of the "Queen of Love" at the annual Fiesta de San Jacinto celebration. A dinner and dance was given at the Plaza Hotel the closing night of the convention. This was known as a "Night in Old Mexico," the entire program being Mexican. A special entertainment program was prepared for the ladies attending the convention, including luncheons, teas, etc. The ladies attended the spring horse race meet as guests of the convention committee.

Head Southwest Division A. P. I.



CHASE E. SUTTON
Chairman

HARVEY HARDISON
Vice Chairman

New Officers

San Antonio, Texas.—The following officers for the ensuing year were elected by the Southwestern District members at the Spring Meeting of the American Petroleum Institute Division of Production:

Chase Sutton, The Pure Oil Company, Houston, chairman.

Harvey Hardison, The California Company, Midland, vice chairman for West Texas.

L. B. Holland, Phillips Petroleum Company, vice chairman for North Texas.

Carl E. Reistle, Jr., East Texas Engineering Association, Kilgore, vice chairman for East Texas.

R. D. Risser, Shell Petroleum Corporation, Iowa, Louisiana, vice chairman for Arkansas-Louisiana.

(*Continued on page 47*)

Just One More Shot

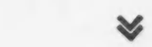
Repeatedly seeking relief or help through the medicine of government regulation, the oil industry is compared with the man using narcotics.

JACK LOGAN
Associate Editor

IN its present controversy over advisability of stronger federal control, the oil industry is like a man who has had some shots in the arm and who is debating whether or not to get more.

He realizes the danger of the narcotics he has started using, and partially turns away from them, but cannot quite become reconciled to giving them up, having experienced their sedative effect. It is conjectural whether he will finally turn against the narcotics, or whether he will continue to drift on, through repeated shots in the arm, into complete and inescapable slavery to the drugs.

It is not clear, in other words, whether the oil industry will eventually call a definite halt in its dependence on the narcotic of government regulation, or whether it will go on, taking additional shots, until it becomes incurably addicted, embracing complete government regulation.



IT is perhaps harsh to compare the great oil industry, in its perturbation over federal control, with a man fighting dope. But in substantiation of the comparison, little more is needed than a review of the brief history of government control of oil. That history is only eight years long. But in that brief period the industry has gone a long way down the road toward complete government domination or government ownership.

The history opened about 1927, when the need for control of flush oil fields became particularly urgent, and when voluntary proration was found (in a brief and impatient trial) to be inadequate. Impatiently bent upon maintaining attractive prices for crude and refined oils, despite abundant potential production, the industry went to the state governments and sought laws and government agencies that would hold production in balance with demand. State proration of the present era was thus inaugurated. The industry had received a shot in the arm.

Then the unprecedented East Texas oil field came along in 1931. Much bolstering and strengthening of the Texas oil "conservation" law was needed, as existing state control could not prevent crude oil from dropping in price to 10 cents a barrel. The state laws were strengthened. The industry had been given another shot in the arm.

As is the custom with narcotics, however, the effect was not lasting, and there was need, from time to time, for more shots: through shut-downs of the East Texas field, and through now and then a new oil control law.

FINALLY came 1933 and chaotic conditions in East Texas that led to embodiment of rigid oil control provisions in the National Industrial Recovery Act itself as well as in the oil code established thereunder. The industry bargained only for federal government control of a loose nature, wanting chiefly restriction of crude production. But along with crude production control, it was obliged to accept considerable additional control, including regulation of wages, working hours, refining, and marketing. Thus the industry received another shot—although not in the arm, some might contend.

Even that, however, wore off. The Supreme Court turned thumbs down on federal control of oil shipping as authorized in the Connally amendment of NIRA. The industry rushed to Washington with a plea for replacement of the invalidated section, and the present Connally Act, for preventing interstate shipping of hot oil, became law. That was a clear case of an appeal by the industry to the federal government for help. The government obligingly administered the shot in the arm.

Last week another request of the industry for further regulation reached the national capital. Having been

ratified by five states, the interstate compact proposal was forwarded to Washington with the plea that the President urge Congress to approve it through a new federal oil law. The control that is proposed would be furnished by the state and federal governments in cooperation. This is another clear case of a plea by the industry for the government regulation involved. It appears that the desired shot in the arm will be gladly given.

"BUT this is the end," say some within the industry. "Now we have achieved the ultimate in governmental regulation. The Connally Act and the Interstate Compact together give all that is needed or desirable in the way of government control."

The Connally Act may, or may not, be constitutional. It has not been tested in the courts. There are some attorneys who believe it will be held invalid, because in it Congress has delegated to the states power that can be used to restrict the free flow of oils in interstate commerce. Such authority over interstate commerce is reserved, under the constitution, strictly to the federal government, it is contended.

The Interstate Compact may or may not be sanctioned by Congress. If adopted, it may or may not prove workable. A weakness is that all the 18 oil producing states can hardly be expected to get together, much less stay together, without a superior authority. The compact might develop merely into a sort of League of Nations.

Thus it is quite conceivable that one or both of these forms of federal regulation, shipping control or interstate agreements, may collapse. It is quite conceivable, consequently, that currently satisfied elements in the industry will eventually be coming forward with pleas for another shot in the arm.

BUT even today, with the Connally Act and the Interstate Compact assumed to be invulnerable, there are some elements in the industry that already exclaim, "No, what we have is not yet enough! We need a Thomas Act to provide permanent federal regulation of imports. To achieve the desired balance of supply with demand, we must have control of the supply from foreign as well as domestic fields. And the only basis we now have is NIRA, which will soon expire. We need a Thomas Act, moreover, for assurance that all oil producing states—not just those in interstate compacts—will stay within allocations recommended by the national government. We need a Thomas Act, finally, as a stop-gap, to function if the interstate compact fails to hold the states in line." In this advocacy of the Thomas bill there is an almost plaintive cry for a shot in the arm.

IN connection with the Thomas bill, one of its arch sponsors, an attorney for a large oil company, made an admission indicating that present federal control ideas may be further extended later. He was questioned as to why the bill was limited to control of production and did not include refining, marketing, and transportation. He replied that possibly such inclusion might be necessary later, but that for the present all that was asked was an opportunity to test out federal regulation under the Thomas bill.

The questioning of the witness brought out that if the federal government has authority to regulate production, under exercise of its powers over commerce, then it can quite likely regulate distribution and marketing, which are closely allied with commerce. When and if the federal government regulation has been so expanded, it was argued by the questioner, it can then be made to embrace price fixing and regulation of profits. The witness conceded such a far reaching exercise of federal authority was to be feared.

Thus there appears to be no end in sight for the potential pleas for additional government regulation—no end short of full control or ownership of the industry by the government.

And as stated previously, it appears conjectural whether the industry will eventually quit asking for additional government regulation, or whether it will persist in seeking more and more regulation until it has reached the inevitable stage of complete control.

IN view of the strong opposition to the Thomas bill, it is conceivable that the industry is at last becoming doubtful of the wisdom of inviting government regulation. Certainly, the desire for government regulation should be less consuming now than at times in the past. For the malignant influence of East Texas on the markets is waning, and there are no uncontrollable new flush fields on the horizon at present to cause anxiety.

Despite the fight against the Thomas bill, however, there are some strong indications that the industry will eventually continue on the trend toward stricter government regulation. The advocates of stronger control are not likely to give up the fight for their ideas with the mere defeat of a bill. Furthermore, even the opponents of the Thomas bill have their fingers crossed, in some instances, to the extent that they still uphold government control as it exists, and are willing to extend it through some new measures, such as the Interstate Compact.

Thus the narcotic is seen to have a strong hold. There has been a determined effort lately to break loose from the drug. But the craving still lingers on.

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MEN IN THE INDUSTRY'S NEWS

J. C. "JAKE" JULIAN, for many years connected with the scouting department of Skelly Oil Company and one of the best known of the younger group of Mid-Continent scouts, has resigned to join the scouting department of Continental Oil Company. He has been assigned to the Ada, Oklahoma, district.

STEPHEN REDFERN and Ernest Black have been transferred from the Blackwell, Oklahoma, to the Wichita, Kansas, offices of Lario Oil & Gas Company. Redfern has been made scout in the district succeeding Joe O'Shaughnessy who was transferred to Oklahoma City.

C. B. REED, Phillips Petroleum Company, McCamey, Texas, has been awarded the president's medal by the National Safety Council for saving the life of Miss Ruby Russell who had been overcome by gas.

C. V. MILLIKAN, chief engineer for Amerada Petroleum Corporation, has returned to Tulsa after a business trip to California. Millikan pioneered the study and application of bottom hole or formation pressure information.

C. P. PARSONS, head of the advertising and public relations department of Halliburton Oil Well Cementing, Duncan, Oklahoma, was the principal speaker before the Tulsa Purchasing Agents' Association on Tuesday evening, April 23. Parsons discussed "Oil Well Cementing," and presented a motion picture, "Hells Wells," a collection of pictures of blowouts and fires.

OTTO D. DONNELL, president of Ohio Oil Company, has returned to Findlay, Ohio, after making an inspection trip to the western division of the company. He was accompanied by Mrs. Donnell, and visited operations on the West Coast, in Utah, and Wyoming.

PAUL G. WEIDNER of Tulsa, Okla., head of the natural gasoline department of the Stanolind Oil & Gas Company, was in Casper last week where he attended executive meetings of the Rocky Mountain Division of the company.

ROBERT SPEIRS DICKIE, director of British Burmah Petroleum Company, Limited, has returned to London following a tour of inspection of properties of South African Torbanite Mining and Refining Company, Limited, in South Africa.

H. W. LANE has been appointed chief fields superintendent in Persia for Anglo-Persian Oil Company, Limited.

THOMAS A. COMBS, president, Swiss Oil Corporation, Lexington, Kentucky, died April 7.

E. H. FINCH, geologist for Venezuelan Petroleum Company returned to the company's New York office from South America early in April.

R. G. GREENE, for several years a geologist with Union Oil Company of California, recently was appointed to head the geological department of Bolsa Chica Oil Corporation, with headquarters in Los Angeles. Mr. Greene is a graduate of Cornell and Stanford Universities.

F. G. TAVES, who has been connected with the California Oil Umpire's office for four years, recently serving as a potential engineer, has resigned to become connected with Schlumberger Electrical Coring Company in California. Robt. H. Pence suceeds Mr. Taves.

BRUCE ROBINSON, formerly with General Petroleum Corporation in California, has assumed the position of chief subsurface engineer in the California Oil Umpire's office, and will pay especial attention to Kettleman Hills.

HERSCHEL H. COOPER, geologist, was the principal speaker at the monthly meeting of the Southwest Texas Oil Scouts Association held in the San Antonio Petroleum Club April 19. His discussion concerned the oil and gas producing horizons of Southwest Texas.

MRS. CARL THEISEN, paleontologist, has established offices in San Antonio. Mrs. Theisen will be remembered as Miss Beth Worthington. She is well known in the South Texas territory and has done considerable work on formations in this area.

I. H. STEIN has been advanced to the position of chief geologist of Continental Oil Company's South Texas office in San Antonio. He replaces Knox Tyson, who has been transferred to the newly organized division offices of Continental Oil Company in Houston to serve in the capacity of chief geologist. Miss Jean Ross, paleontologist with the company in San Antonio, also has been transferred to Houston. The new office will have jurisdiction over the Texas Gulf Coast, Louisiana, Southwest Texas and Northern Mexico.

CHESTER A. SLIMP of Slimp Oil Company, has been elected president of the San Antonio Y.M.C.A. for the fifth consecutive year.

O. W. KILLAM, discoverer of the oil production in the Mirando district of Southwest Texas, celebrated the seventeenth anniversary of his discovery April 17 by relating the history of the district to the Laredo Rotary Club at its weekly luncheon.

W. R. KEEVER, vice president of Union Sulphur Company, Sulphur, La., has spent considerable time in the Rio Grande Valley of Texas watching operations on the company's deep tests. One well is apparently opening a new field at 7493 feet. Other members of the company also visiting the valley included C. J. LeBlanc and Wesley Trahan. J. B. Taylor is in charge of the company's operations. He has offices in Mercedes.

WALTER S. HALLANAN, president of Plymouth Oil Company, Charleston, West Virginia, was in Sinton last week to watch the company complete two oil wells on the Welder ranch in San Patricio County. One opened a new 5500-foot oil field, while the other establishes commercial oil production in a 5400-foot gas area. Other officials of the company present included J. G. Farquhar, vice president, from Pittsburgh, Pa.; Charles E. Beyer, vice president, Texon, Texas.

R. B. PAXSON, formerly in the geological department for Continental Oil Company in its Gulf Coast division, which has headquarters at Houston, has been promoted to the position of assistant general superintendent of the division.

A. K. TYSON is now division geologist at Houston for Continental Oil Company. He formerly was in the San Antonio office.

MISS JEAN ROSS, paleontologist for Continental Oil Company, has been transferred from San Antonio to Houston.

R. W. HOWE, vice president of Atlantic Oil Producing Company with headquarters in Dallas, Texas, was a visitor in Shreveport last week.

CECIL KELLER, scout for The Texas Company in North Texas, has been transferred from Wichita Falls to Gainesville as result of increased field activity in the northeast portion of the district.

(*Continued on page* 40)

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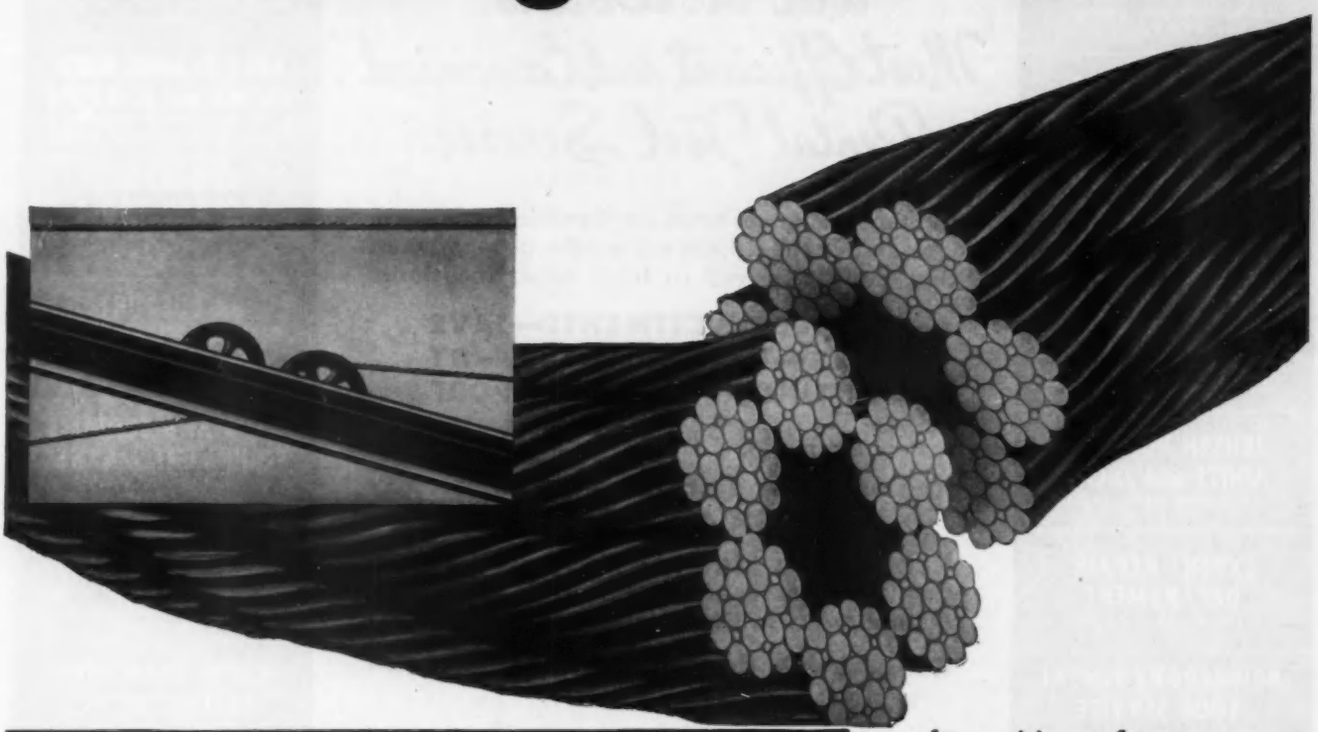

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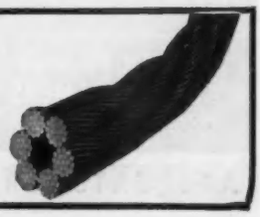
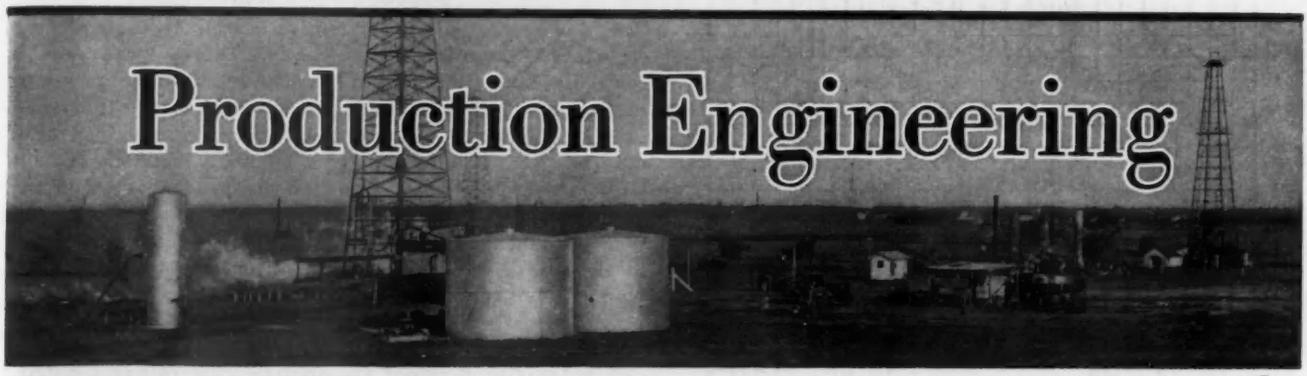




Paraffin Production Problems

C. E. REISTLE, JR.,
East Texas Engineering Association,
Kilgore, Texas

ONE of the problems often encountered in the production of paraffin and mixed-base crudes that contain a high percentage of wax is the accumulation of these hydrocarbons, generally called "paraffin," in the producing string, flow lines, tank batteries and in some cases on the face of the sand. In the preparation of the accompanying paper the author has tried to summarize briefly the available information on these production problems.

This paper, which was presented at the Spring Meeting, Southwestern District, American Petroleum Institute Division of Production, San Antonio, Texas, April 25-26, 1935, represents solely the views of the author and not necessarily of this publication.

Characteristics and Composition of Paraffin

THE principal constituent of so-called paraffin is the higher melting point waxes found in petroleum. These waxes separate from solution in the crude oil in the form of very fine crystals that tend to agglomerate and form granular particles of wax about the size of ordinary table salt. Deposited paraffin also contains gums, resins, asphaltic material, crude oil, sand silt and in some instances water in addition to the wax crystals. Because the oil gradually "sweats" or drains from the wax particles, the hardness of paraffin and the quantity of oil associated with the wax depends upon the length of time during which accumulation has taken place and the manner in which it was deposited. The compositions of several paraffins are given in Table 1.

The wax found in paraffin may range from the lowest to the highest melting point waxes present in the oil. In a laboratory study of paraffins from different fields, waxes were found with melting points ranging from 100 to 191 degrees Fahrenheit.[1] The paraffin accumulations in wells in the same field will differ in the amount of the various melting point fraction of wax they contain, as the conditions causing precipitation vary with each individual well.

Factors Governing the Solubility and Deposition of Paraffin

These waxes, gums, resins and asphaltic material which compose the deposited paraffin are in true solution in the crude oil as it originally exists in the reservoir. If the alteration of certain conditions during the production and/or transportation destroys this equilibrium of the solution, separation and deposition of these less soluble constituents results. The most important factor affecting the stability of the solution of these constituents in the crude oil is temperature. Natural waxes are soluble in the liquid constituents of crude oil in all proportions, at their melting point temperature, however, as the temperature is lowered the solubility rapidly decreases. The solubility of several different melting point waxes in two different crude oils are illustrated by the curves in Figure 1. In most cases crude oil contains only a relatively small quantity of the higher melting point waxes and the temperature of the oil must be lowered appreciably below the normal reservoir temperature before any wax is precipitated from the solution. The reservoir temperature in the East Texas field, for example, is between 140 and 150 degrees Fahrenheit, and wax does not start to separate from the East Texas crude oil until the oil is cooled to a temperature of from 95 to 98 degrees Fahrenheit. However, there are exceptions where wax separates from the oil if it is cooled only a few degrees below the reservoir temperature; the temperature of the second

TABLE 1
Oil, Wax, Gums, Resins, and Asphaltic Material present in crude paraffin after removing suspended material.

SAMPLE	Melting Point, Degrees F.	PERCENT BY WEIGHT			
		Oil	Wax	Gums and Resins	Asphaltic Material
Panhandle, Texas...	141	25.0	58.0	16.0	0.5
West Virginia.....	161	32.0	51.0	15.0	None
Pennsylvania.....	132	33.0	57.0	8.0	0.1
Salt Creek.....	165	38.0	48.0	11.0	2.2

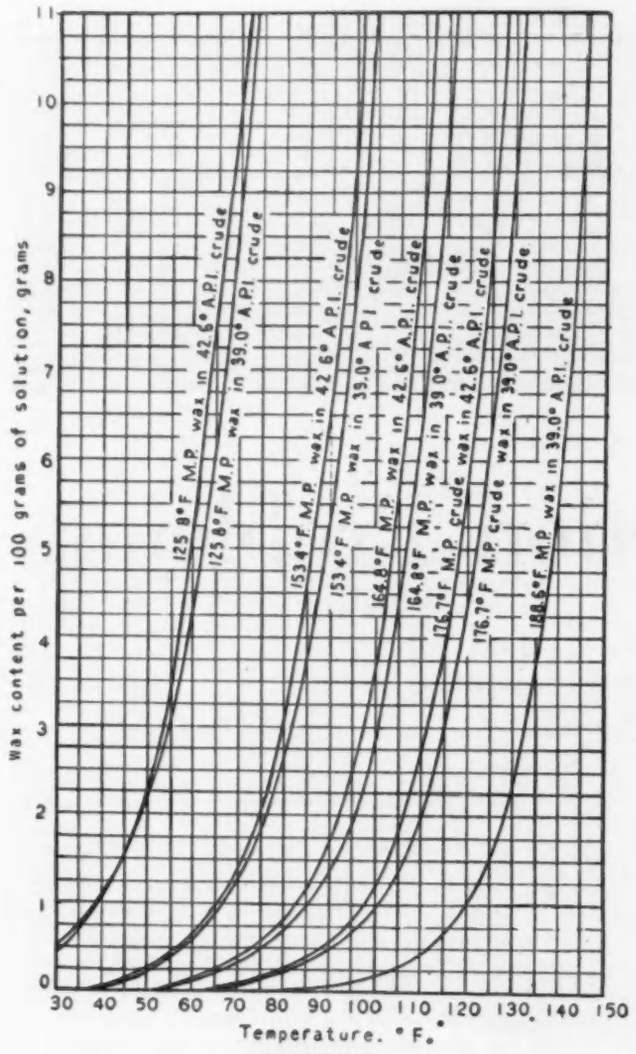

Wax content per 100 grams of solution, grams
Temperature, °F.
125.8°F M.P. wax in 42.6° A.P.I. crude
125.8°F M.P. wax in 39.0° A.P.I. crude
153.4°F M.P. wax in 42.6° A.P.I. crude
153.4°F M.P. wax in 39.0° A.P.I. crude
164.8°F M.P. wax in 42.6° A.P.I. crude
164.8°F M.P. wax in 39.0° A.P.I. crude
176.7°F M.P. crude wax in 42.6° A.P.I. crude
176.7°F M.P. crude wax in 39.0° A.P.I. crude
180.5°F M.P. wax in 39.0° A.P.I. crude

FIGURE 1
Solubility of different melting point waxes.

Wall Creek sand, in the Salt Creek field, Wyoming, varies from 103 to 108 degrees Fahrenheit. Wax separates from this crude oil when it is cooled to a temperature ranging from 95 to 98 degrees Fahrenheit.

The evaporation of the crude oil is second only in importance to the temperature of the oil as a factor affecting the precipitation of paraffin. There is a continuous loss of the volatile liquid constituents of the crude oil after it enters the well and in many cases even while flowing through the sand, until it reaches the refinery. Loss of these lighter constituents reduces the quantity of wax that can be held in solution: (1) by reducing the volume of the oil, resulting in less solvent being available to dissolve the same quantity of wax; and, (2) by decreasing the solvent power of the oil for the wax, because the waxes are more soluble in the lighter constituents of crude oil than in the heavier ones. The effect of evaporation on the solubility in crude oil is illustrated by the curves in Figure 2.

The effect of pressure upon the solubility of paraffin is negligible, although theoretically, increasing the pressure tends to decrease the solubility. However, laboratory experiments[3] using pressure as great as 1000 pounds per square inch have failed to show any appreciable change in the solubility.

Laboratory experiments[3] also have shown that the change in solubility of wax in crude oil due to the presence of dissolved gas even in large quantities is so small that it can be disregarded as a factor in the deposition of parafin.[3]

Deposition of Paraffin

In flowing wells the radiation of heat to the surrounding formations, the utilization of thermal energy by the gas in expanding and lifting the oil, and evaporation of a part of the more volatile constituents, all tend to cool the oil and cause precipitation of the dissolved wax. Although paraffin may be precipitated from the oil due to these changes, it will not necessarily be deposited on the sand face on the walls of the pipe, the oil string, rods or other objects. In fact it would seem logical for the wax to remain suspended in the oil. This ideal condition often exists and in some wells little or no paraffin accumulates even though it is precipitated from the oil before it leaves the well.

Laboratory and field studies have shown that certain definite conditions favor the accumulation of paraffin. Assuming of course that the oil contains precipitated paraffin or wax crystals, due to the causes previously discussed, the following conditions have been found to be favorable for the accumulation of paraffin: When a surface is intermittently coated with oil[4] the film of oil drains away until it is too thin and movement too slow to carry the soft gummy wax particles in suspension. These particles become firmly attached to the surface while the oil continues to drain from it. If the surface be cooler than the saturation temperature of the oil wax solution, additional wax is precipitated. The film of oil also exposes a large surface to evaporation, which may result in further precipitation of wax.

When a surface is continually in contact with a body of oil having approximately the same temperature, the suspended wax is not brought so firmly in contact with the surface and tends to remain suspended in the oil.

If the pipe or surface be much cooler than the oil, the wax in the oil in immediate contact with the cold surface often is precipitated from solution and deposited on the pipe. The precipitation and accumulation of paraffin on cold pipe surfaces, while the oil is in motion, seems to be more pronounced when steamline flow prevails. If the flow is turbulent, the movement of the oil seems to cause the paraffin to remain in suspension in the oil and very little paraffin accumulates on the pipe surfaces.

A film of oil, which seems to be the condition most favorable to the accumulation of paraffin once it is precipitated from solution in the oil, is formed in the oil string of wells flowing by heads, in wells operated intermittently, or, in flowing wells when the ratio of gas to oil in the flow string is such that foam flow does not exist and the sleeve and mist form of flow prevails. The accumulation of paraffin is most pronounced under these conditions.

(*Continued on page* 43)

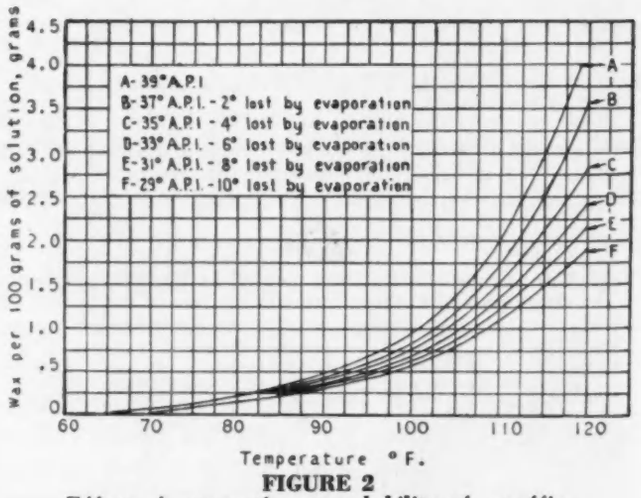
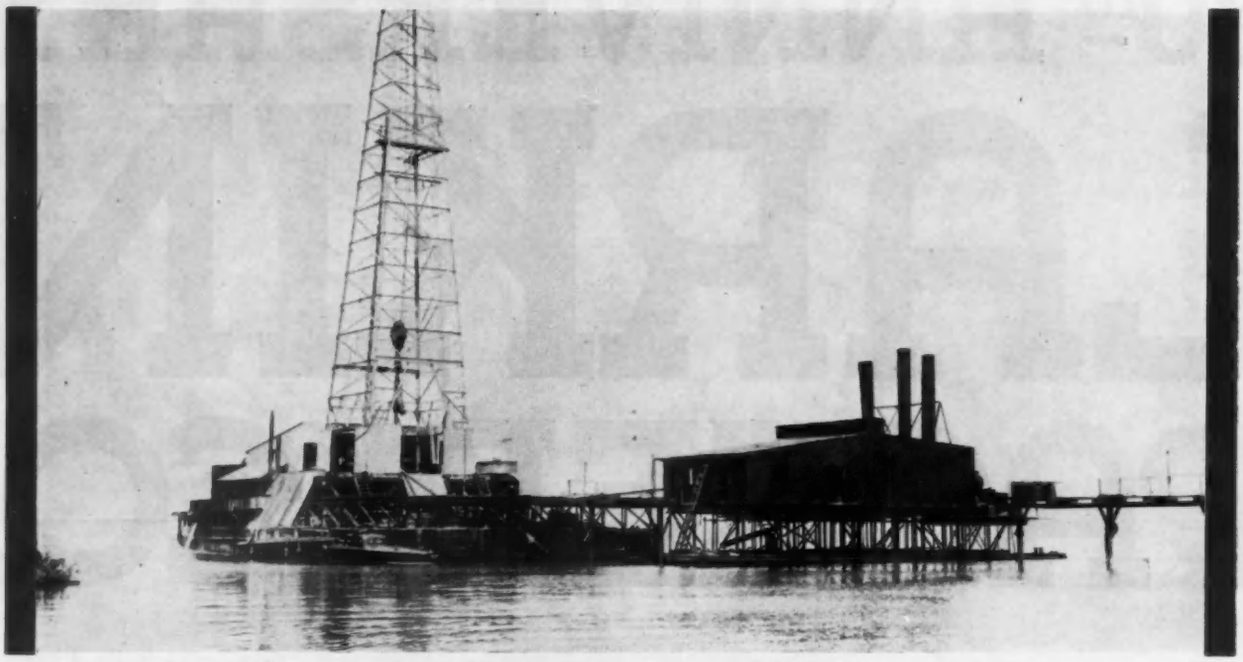

Wax per 100 grams of solution, grams
Temperature °F.
A- 39°A.P.I
B- 37° A.P.I. - 2° lost by evaporation
C- 35° A.P.I - 4° lost by evaporation
D- 33° A.P.I. - 6° lost by evaporation
E- 31° A.P.I. - 8° lost by evaporation
F- 29° A.P.I. - 10° lost by evaporation

FIGURE 2
Effect of evaporation on solubility of paraffin.



Drilling barges working in south Louisiana

Drilling Barges . . .

C. I. McBRIDE

The Texas Company, Shreveport, La.

THE company with which the author is affiliated expects to realize a net cash saving of $600,000 during the year 1935 with the fleet of seven drilling barges which are now operating in the Louisiana Gulf Coast.

The first of these units is now almost three years old; to date 25 wells have been completed in what one might call marine fashion. It is believed that sufficient information is now available to present a complete picture of these operations.

Articles have appeared in oil field periodicals which have been descriptive, mainly, of some of the earlier types of floating drilling barges. No attempt will here be made to describe these to any great extent—while they are satisfactory for certain specialized types of work, we consider them inadequate for customary oil well drilling. In our preliminary plans, originated in the fall of 1931, for the present type of twin hull drilling barge, it was decided to build the unit of sufficient capacity that it could be sunk solidly upon lake bottom. This type of construction and operation possesses the following decided advantages:

1. It is unaffected by tides, wind and waves. Considering adequate blowout control this becomes an important feature.

2. With increasing depth the load on the pipe-rack varies, as does also the amount and weight of mud in the ditch and pits. Experience has shown that a slight disturbance of the center of gravity of a floating barge pulls the derrick enormously out of plumb. With submerged barges it is found that the 136-foot derricks remain truly vertical during all drilling operations.

3. Submergence provides unusual stability as was proved in a severe hurricane on June 16 of last year. One derrick was blown over; two steel barges carrying a load of fresh water were blown a mile inland; a 30,000-barrel tanker, which had been settled well into the lake bottom as permanent storage, shifted four feet. The twin-hull drilling barge, less than 2000 feet away, did not move, as far as could be determined, a fraction of an inch.

The first decision made in the design and construction

CONSIDERABLE interest in the barge type of marine drilling has developed during recent years, and it appears that there will be an increasing amount of drilling in areas covered by water. For this reason the accompanying paper is of interest.

The paper was presented at the Spring Meeting of the Southwestern District of the American Petroleum Institute Division of Production, April 25-26, 1935, San Antonio. The remarks made are solely those of the writer and do not reflect the opinions of this publication.

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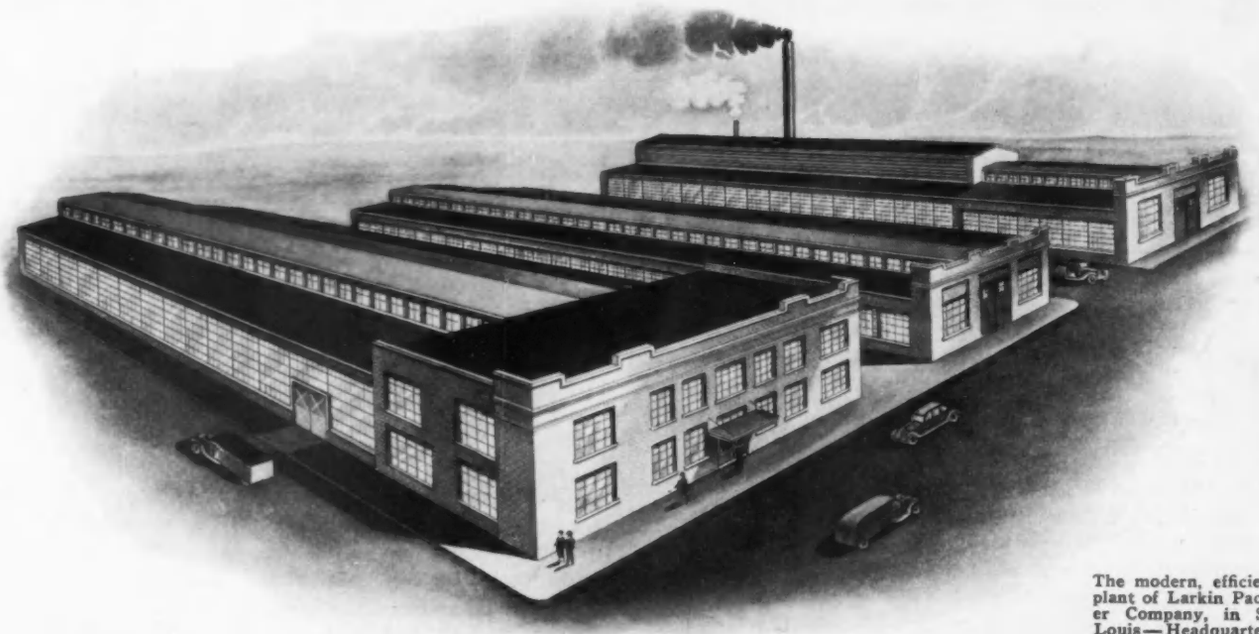

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Here are a few outstanding manufacturing accomplishments of which we are particularly proud:

Product	Date Started to Manufacture	Number Sold To Date
Packers	1905	29,493 pieces
Casing Shoes	1915	129,333 pieces
Clamps, Casing and Anchor	1913	11,016,140 lbs.
Swaged Nipples and Bull Plugs	1929	136,808 pieces

And note this: More Larkin Float Shoes were used in the East Texas field during 1932-3-4 than all other makes combined! Surely this indicates the real confidence which operators have in LARKIN Equipment.

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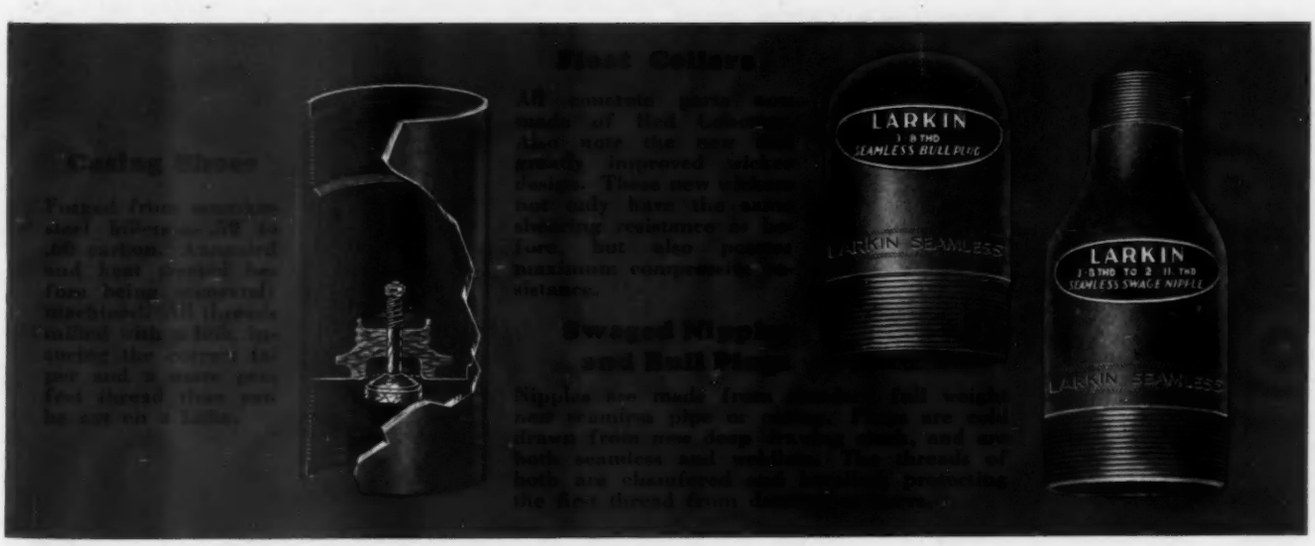

of our first twin-hull drilling barge was to establish such elements as to what constituted a pipe rack of convenient yet minimum length, what was desirable for a mud ditch, and the size of the slush pit and reserve mud pits.

While it was believed that the project would be successful there was, nevertheless, the element of risk attendant upon the usage of the first unit. Hence, rather than design an odd shaped single barge, with a "slot" or "bay" running from center to one end, it was decided to build two standard transportation barges, of 100 percent salvage value, these to be placed side by side but separated eight feet and the drilling carried on between them. The present barges are 120 feet long and 24 feet wide, each, so the outfit when unified by the super-structure is 120 x 56 feet wide, and 21 feet deep from derrick floor to bottom.

In calculating the strength requirements of the barges and superstructure the following extremes were considered:

First, that the unit would rest on a sand bar at the forward and back ends and would be unsupported over a longitudinal span of 100 feet.

Second, that it would be unsupported in the middle and that the side edges, 56 feet apart, would carry the load. In this case the trusses would not only support the rotary table load but must also hold up the barges.

Third, that it might settle on a high spot in the center in which case the outside edges would have no support.

In the three above assumptions the derrick floor was considered to be carrying 6000 feet of 7⅝-inch casing stacked on either side of the table, while at the same time the table was supporting the weight of 10,000 feet of four-inch drill pipe under an additional impact load of 50 percent.

Subsequent experience has demonstrated that the foregoing assumptions were possibly a little too cautious. For example the drilling barge "Shea" at Cameron last fall was sunk in an area that had been levelled off by dredging. One edge was a foot higher than the other and the top of the derrick three feet away from vertical. While provision is made for shimming derrick legs it is not desirable to do so—it sets up undesirable strains in the derrick—and it has been found far simpler to pump water out of the low barge into the high one until the derrick is vertical. This operation takes only a few hours.

It was originally feared that the barges might settle sufficiently to "stick" on bottom, therefore, just inside the edges of the barges through deck and bottom, lengths of two-inch pipe were installed through which water or air might be pumped to "break suction." In a total of 112 moves made by all these drilling barges and boiler barges, only on one occasion did a barge refuse to rise and it was immediately freed by pumping water through the jets. The jets have not been used on recent units because of a belief that it will be cheaper in the long run to use a portable pump on that rare occasion when another barge might stick.

One of the particularly interesting features of the drilling barge is the cellar arrangement. On nearly all other types of substructures there are required four vertical posts to support the rotary table load. This concentrated loading is greatly in excess of single derrick leg loading and the barge could scarcely have been built to bear up under conventional design. The whole weight supported by the table rests on two 33-inch girder beams weighing 200 pounds per foot and is carried across the 24-foot span to the two main trusses that unify the barges. These in turn spread the load transversely across the decks of both barges. In each of the barge hulls there are two longitudinal trusses, while the centerline bulkhead and sides are stiffened to become essentially girder plates.

This type of construction permits seven feet four inches full clearance under the entire derrick floor and greatly facilitates making connections. The last barge completed uses a derrick with a 30-foot base and for this the knee-bracing under the 33-inch beam has been increased but vertical supports have been avoided.

Each barge is provided with eight water-tight compartments which permit differential flooding and withdrawal for level settling and control of floating.

Any one of the 16 compartments can be isolated by valves in the bulkheads, controlled by reach rods above deck, thereby permitting isolation of a faulty or leaky compartment.

To reduce corrosion, copper-bearing steel has been used throughout on all barges of all types built for us since 1930, and for the particular conditions existing in Terrebonne and neighboring parishes, under-water pitting has thereby been reduced at least by half as compared with structural steel or hull-quality plates.

Bulkheads, deck and sides of the barges are of 5/16-inch plate; ⅜-inch plating on bottoms to offset the abrasive action of sand, and to effect probably existant but not sensible vibration.

The ease with which the drilling unit can be operated has exceeded the most optimistic hopes, as is shown by the completion of State-Lake Barre Well 28. Oil sand was found and the water string set and cemented. While cement was setting, piling was driven for the next location, Well No. 26. Coastal operators familiar with piercement-type salt domes will appreciate the advantage of being able to delay choice in making location for a subsequent well till sand is found in the drilling well. Location for No. 26 being made, 14 piles were driven, there being two rows, six feet apart, of seven piles each. The four around the location stake are cross braced in two directions. One day is ample for the driving and bracing.

Now, getting back to Well No. 28, plug was drilled, screen set, and the three-hour job of cleaning mud from the hole and washing the well to production was begun. Simultaneously the centrifugal pump that supplies cooling water to the condenser was manifolded to take its suction from the barge hulls instead of from the lake. In a few hours water level inside the barge was three feet lower than outside. On this particular barge four feet differential is necessary for buoyancy. Well No. 28 was washed thoroughly and began making pipe line oil at 10:00 a.m. June 30, 1934. When sufficient pressure built up the well was closed in and flow line disconnected. The pipe rack walk and ramp were unbolted and removed and as well the bottom chord of one of the main trusses connecting the barges. Buoyancy was obtained before removal of the truss suction, the barge in rising being guided by two large spuds located approximately at outside center of each barge.

All being clear the spuds were raised and the barge backed away from the christmas tree. The simplicity of the above move is emphasized when it is considered that the entire operation was accomplished in two hours. At noon time the well was turned back into the tanks, while the drilling barge was well on its way toward the new location. The slot between the barges, which was left wide open for this short move, was pointed at the rows of piling and the barge towed over them until the center of the derrick floor was over the location stake. The two spuds, held by quick-releasing clamps, were then dropped and the barge was firmly anchored in place. Four large sea-cocks, located just below water line were then opened to flood the barge, allowing the unit to sink.

The boiler barge was moved in substantially the same fashion, and the water and steam lines reconnected. There

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LAD "Righto—and the welds made with 'Fleetweld' are equal to or better than mild rolled steel in every respect, including resistance to corrosion. Ask Lincoln for proof."

being no hurry, so to speak, the rig was cleaned up, and well No. 26 spudded in that same night.

The preceding record may seem to be fast, yet it was taken from an actual case, and represents usual practice. The longest time consumed so far between finishing one well and starting another amounted to 36 hours. This occasion was the first move made by a twin hull drilling barge when it was towed 16 miles from Lake Pelto to Lake Barre. During transit the tow boat, of greater draft than the barge, was stopped for 12 hours during low tide. Discounting this interruption the net longest time spent moving is 24 hours.

The ability to move about from well to well without dismantling any equipment is a great convenience for the operator. The convenience, however, is an incidental benefit, the main issue being the difference in cost of drilling. It will be necessary that the figures about to follow be studied carefully. It is difficult to establish clear and trustworthy figures on a cost per well or cost per foot basis for our marsh land drilling. Other operators who have drilled from pile-driven structures are aware of the expenses encountered, but to make the following figures convincing only the tangible and easily traceable items of expense will be listed in the comparison between a barge-driven and a pile-driven well.

Item One—Saving on Piling

Teredos in the lakes and coastal marshes demand the use of creosoted piling of 24-pound penetration. A complete rig, boiler house, pipe rack and tank foundation demands 260 piles of 40, 50 and 60-foot lengths. Contract prices on pile driving range from $8.00 to $12.50 per pile, while with company equipment we average close to $9.00 each. Upon completion of the well, piling is salvaged but due to redriving and cutting tops for capping, one pile can serve at best only five wells. A 60-foot pile costs $35.00 each F.O.B. Houma; depreciation per well averages $7.00; pulling costs $5.00 per pile. While these figures will be used, it is probably too conservative since a number of piles are usually broken at the mud level, and in some areas no more than five to 10 piles can be recovered per day.

Each pile then represents an expenditure of $21.00 per well; 260 piles for one method and 20 or less for the barge method of drilling net us immediate saving of $5040.

Item Two—Lumber

A piling job requires for capping, bracing, flooring, pipe racks, ditch, etc., a total of 44,000 board feet of lumber. The salvage value is much less than that of piling, each setting uses nearly one half new lumber. However, to be conservative, the loss is here established at one third. Of $2200 worth of lumber $733 is lost per pile-driven well against a possible $50 worth from barges. Labor for handling at $15 per 1000 board feet amounts to $660.

Item Three—Tools and Connections

In tearing down a rig and boiler station, transporting and rebuilding it, a charge of $1000 was made in previous estimates several years ago to cover replacement of nipples, flanges, valves, chain tongs, pipe wrenches, end wrenches, other small tools and supplies, lights and cable. With present boiler pressures of 350 pounds per square inch, the cost of valves and fittings has increased enormously, and a check on rigging up jobs indicates that previous estimates were too low—$1600 to $2000 is closer, therefore, a $1600 replacement charge has been assumed for pile-driven work. Our first twin hull job, now on its eighth well has suffered no loss of tools or fittings, there being only a negligible replacement of worn parts for wrenches.

Item Four—Derrick and Tanks

The boiler barge has 1000 barrels of water storage provided on the barge deck, while the drilling barge has its reserve mud pits located under each pipe rack. The derrick, of course, is permanently set up on the barge.

The following charges became definite drilling barge savings:

Labor erecting derrick	$150.00
Derrick hardware	30.00
Labor resetting tanks	150.00
Tank hardware	20.00
	$350.00

Item Five—Cost of Drilling

Tabulated below are records of eight pile-driven wells, four in favorable locations (same boiler station used on

	State-Lake Barre				Dog Lake		Caillou Island	
	No. 11	No. 12	No. 14	No. 16	No. 5	No. 6	No. 5	No. 6
Days rigging up	6	8	3	6	18	15	11	12
Days drilling	41	53	62	43	66	56	74	115
Days tearing down	7	5	5	6	11	3	10	6

	Total Time Eight Wells	Average Per Well
Days rigging up	79	10
Days drilling	510	64
Days tearing down	53	7
	642	81

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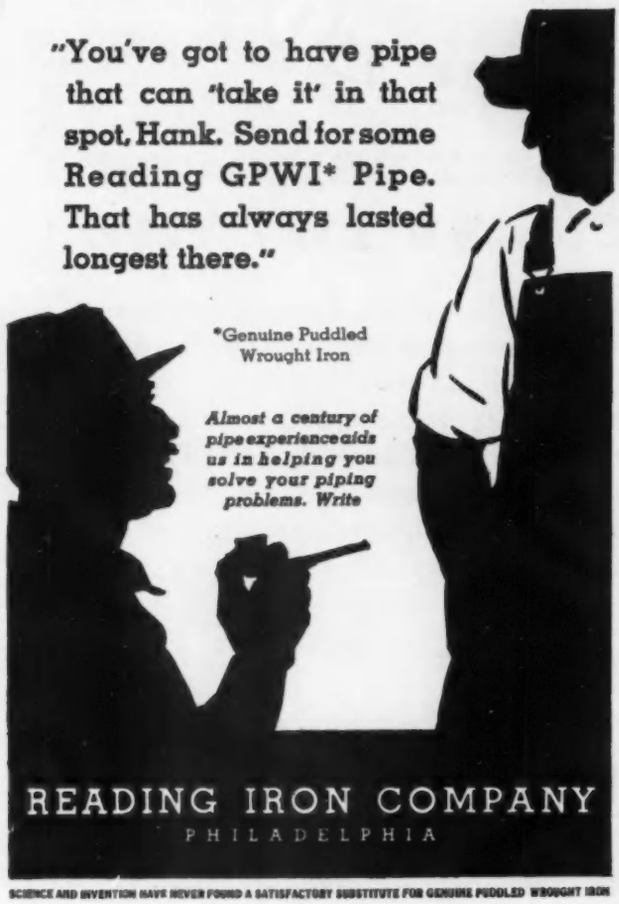
Barre 11 and 12 and also 14 and 16) and four in outlying areas.

The above does not include driving, bracing and capping of piling or building derrick, hence, of the 81 days spent on the well, 21 percent of the time is on other than drilling operations. With the drilling barge this figure is reduced to less than one day or two percent of the time. The barge, then, will net a saving of 19 percent on certain drilling costs that will be developed later.

To compute the figure upon which the 19 percent saving is based we use the total cost of the well, both investment and expense, and from it we deduct all surface equipment, underground equipment, fuel, piling expense, lumber, tools and connections and rig builders time. The balance includes labor for rigging up and tearing down, drilling, camp expense, derrick barge time, pilot and standby lugger with gasoline for same and apportionment of all boat house expense chargeable to the well.

The following is the total cost of seven representative wells, with deduction shown as above, except that Items 1 to 4, for piling, lumber, tools derrick and tanks have not as yet been subtracted:

State-Lake Barre No. 11	$45,331.87	
Equipment	19,839.01	$25,492.86
State-Lake Barre No. 12	43,120.33	
Equipment	11,879.98	31,240.35
State-Lake Barre No. 14	40,149.05	
Equipment	10,550.86	29,598.19
State-Lake Barre No. 16	32,504.32	
Equipment	11,768.06	20,736.26
State-Dog Lake No. 5	56,893.88	
Fuel and Equipment	11,254.59	45,539.29
State-Caillou Island No. 5	64,137.67	
Fuel and equipment	18,331.81	45,805.86
State-Caillou Island No. 6	101,167.04	
Fuel and equipment	19,917.39	81,249.65
		$279,662.46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Cost per well on piling	.....	$39,951.78
Less piling	$5,460.00	
Lumber	1,393.00	
Tools	1,600.00	
Derrick and tanks	350.00	
	$8,803.00	8,803.00
Net cost	.....	$31,148.78

This figure of $31,148.78 is the one upon which is based the 19 percent saving effected by the drilling barge due to the elimination of rigging up and tearing down with the additional expenses attendant thereto.

Summary of Savings

To summarize we have the above minimum savings of $5,918.27, difference in piling costs $5,040.00, lumber and handling $1,343.00, tools and connections $1,600.00, for derrick and tanks $350.00 a total of $14,251.27 per well.

There are other savings and profits which will be indicated but not included in terms of dollars. There is the saving of several hundred barrels of fuel because the boiler plant is not in operation during the "dead" time of rigging up and tearing down. The mud pumps have a pressure on their suction and operate better and with less upkeep. The entire rig is anchored on a substantial steel structure and rig repairs are less. Finally, more wells are drilled per year with one rig, netting more and earlier production.

We should easily be able to average six wells per year with one rig, indications are that we will better this, but assuming six, our savings are $85,507.62 per year per barge or close to $600,000 a year for the present fleet of seven drilling barges.

Cost of Barges

Finally there is the element of cost. One single hull barge 36 x 80 x 6 feet six inch depth of hull and with eight-foot high superstructure cost approximately $12,000 delivered. A larger one 40 x 90 x 8 feet deep with 10-foot superstructure cost close to $18,000. Four of the large twin-hull jobs 114 x 56 x 10 feet deep with 11-foot superstructure designed for 26-foot base by 136-foot high derrick cost in the neighborhood of $27,000.

The last one put into service was lengthened to 120 feet, designed to accommodate a 30-foot base derrick, and strengthened accordingly. It cost approximately $30,000. None of the above figures includes the license fee for the use of drilling barges. The Texas Company is joint owner of U. S. Patent No. 1,681,533 and Venezuela Patent No. 1,516 which patents cover the use of submersible drilling barges.

Boiler Installations

In addition to the seven drilling barges, 11 boiler barges are operated. The last three are designed for a four-boiler installation. The hulls are 28 x 84 x 7 feet deep, the superstructure is eight feet high and provides a 1000-barrel water tank located on the barge deck. The boiler barges cost about $9000 delivered.

The foregoing facts describe developments and operations of the barges up to the present. The present design is adequate for territory inside and in water up to 10 feet deep out in the Gulf. We feel that, for drilling a well beyond the last sand bars, drilling barges offer the only satisfactory protection to equipment exposed to Coastal storms. We prefer for the present, at least, not to try to predict the size and shape of barges which might venture well out into the Gulf.

Multiple Drilling *Successfully Permits Three Wells* Under One Location

Application of directional drilling is economy where derrick foundations are a problem or where different sand levels are to be produced

BRAD MILLS
Associate Editor

THREE wells have been drilled from one location in the Elwood field by Barnsdall Oil Company of California. Successful completion of these three producers has demonstrated the value of multiple drilling operations under one location where foundations are a problem, or where two or more producing zones are present. This operator has given considerable thought to the development of tideland leases, and after success in drilling two wells from a single location, followed with a three-well, one-location plan that set a new standard for multiple development.

The Elwood field is cut in half by the mean high tide line of the Pacific Ocean. First development was on the mainland mesa, but granting of tideland leases by the State of California opened a number of valuable submerged tracts to drilling. These narrow ocean strips extend about three-fourths of a mile out into the ocean. The side boundary lines are perpendicular to the shore line, giving the tracts a variety of shapes. The shore line, however, is fairly regular through the field and a number of the tideland leases assume an almost rectangular shape.

In drilling three wells from one location, a large saving was effected. The average well foundation for pier drilling has been costing from $35,000 to $55,000, depending upon the type used, depth of water, nature of ocean bottom, and other factors. The pier, or approach, has averaged more than $15,000 per well. Elimination of two foundations and two approaches in drilling three wells obviously reduces the drilling cost by a large percentage. Cost of pier and foundation work has been so high in the deep water encountered 1000 and 1500 feet from shore that the need for some less expensive method of development has been apparent for some time.

It is necessary to watch closely the course of wells drilled from a single location, but no trouble was experienced in controlling the course of any well. The main objective was to drill the three wells so that their courses through the producing zone would roughly parallel the courses of three wells drilled vertically from three surface locations each 300 feet apart. Care was taken to keep the course of the holes under the permit on which drilling started.

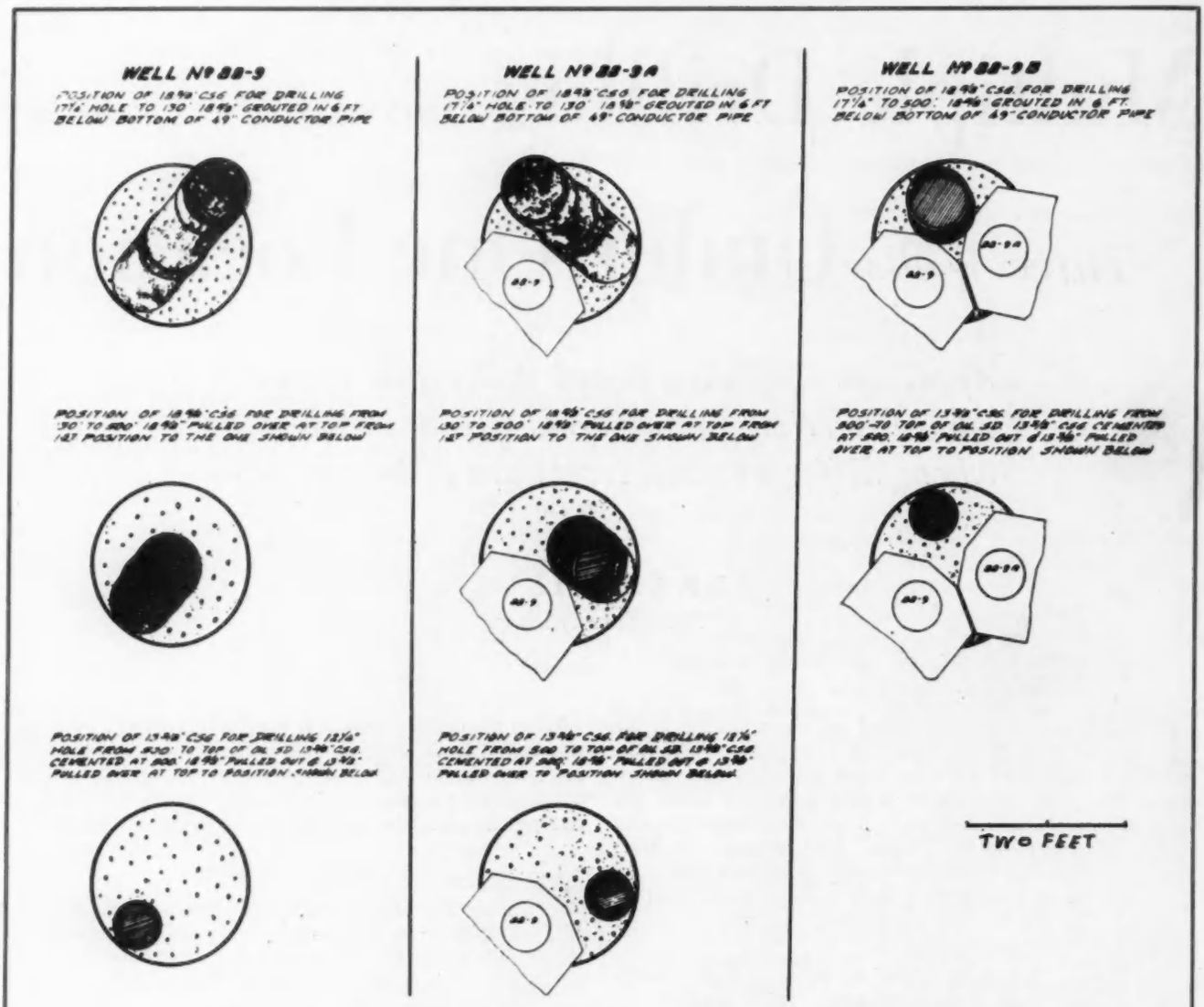
When the derrick foundation was built, a 49-inch conductor was landed in the shale 76 feet below the derrick floor, with the top of the conductor 20 feet below the floor. This conductor was the common carrier for operations in all three wells and proved useful in handling the surface sand and silt.

Drilling First Well

In starting the first well, a wooden frame was used on the 18⅝-inch pipe to hold the short string in place against the side of the conductor. A 79-foot section of 18⅝-inch, 84½-pound slip joint casing was welded together and driven two feet into the shale against the southwest side of the 49-inch conductor pipe. In placing the smaller pipe in this position, the bottom of the pipe at 81 feet drew the top of the 18⅝-inch over toward the draw works. This gave the 18⅝-inch pipe an inclination of 2¼ degrees. It was not necessary to move the crown and draw works from their normal position, but the rotary table was moved along the center of the derrick floor, two feet nearer the draw works. This caused the 18⅝-inch casing to line up with the center of the table crown set over the center of the derrick corners.

The hole was drilled to 178 feet (100 feet cut) with a 17¼-inch fishtail bit on six-inch drill pipe, and with all weight on bit. The 18⅝-inch conductor was drawn over so that it lined up with the center of the derrick at the top of the rotary table. The rotary table was moved back to its normal position, and the hole drilled to 500 feet with a 17¼-inch disc bit, and with all weight on bit. A string of 13⅜-inch casing was cemented at 500 feet.

The 18⅝-inch casing was stripped off and the 13⅜-inch casing pulled over against the 49-inch conductor in line with and 1.1 feet from the center of the derrick on the side opposite the draw works. A short string of tubing was run alongside and it was determined that the hole was cemented up to bottom of the 49-inch conductor. The 13⅜-inch casing was clamped to two 20-inch I-beams that had been placed at right angles to the pier line. Eight-inch H-beams were set around the top of the 49-inch conductor in an octagon shape, and upon this structure the 20-inch I-beams were bolted in place. The


WELL No 88-9
POSITION OF 18⅝" CSG FOR DRILLING 17½" HOLE TO 130'. 18⅝" GROUTED IN 6 FT BELOW BOTTOM OF 49" CONDUCTOR PIPE
POSITION OF 18⅝" CSG FOR DRILLING FROM 130' TO 500'. 18⅝" PULLED OVER AT TOP FROM 1ST POSITION TO THE ONE SHOWN BELOW
POSITION OF 13⅜" CSG FOR DRILLING 12¼" HOLE FROM 500' TO TOP OF OIL SD. 13⅜" CSG CEMENTED AT 500'. 18⅝" PULLED OUT & 13⅜" PULLED OVER AT TOP TO POSITION SHOWN BELOW
WELL No 88-9A
POSITION OF 18⅝" CSG FOR DRILLING 17½" HOLE TO 130'. 18⅝" GROUTED IN 6 FT BELOW BOTTOM OF 49" CONDUCTOR PIPE
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WELL No 88-9B
POSITION OF 18⅝" CSG FOR DRILLING 17½" TO 500'. 18⅝" GROUTED IN 6 FT. BELOW BOTTOM OF 49" CONDUCTOR PIPE
POSITION OF 13⅜" CSG FOR DRILLING FROM 500'-TO TOP OF OIL SD. 13⅜" CSG CEMENTED AT 500'. 18⅝" PULLED OUT & 13⅜" PULLED OVER AT TOP TO POSITION SHOWN BELOW
88-9
88-9A
TWO FEET

Arrangement for drilling three wells. Horizontal section two feet below derrick floor.

I-beam arrangement was such that additional beams could be bolted on at right angles for other wells to follow. The crown and rotary table were moved from their normal position and placed 1.1 feet farther from the draw works, putting them directly over the 13⅜-inch casing. At this point the 78-foot section of 13⅜-inch casing is in a vertical position.

In drilling from 500 feet to the top of the oil zone, the Vaqueros sand, no radical surface changes were made. A string of 10¾-inch casing was cemented over the producing zone below 3000 feet, this string having been landed immediately on top of the 13⅜-inch to conserve space. Liner and tubing were run in the usual manner after deepening the well into the producing zone. The tubing string was landed in the tubing head set on top of the 10¾-inch companion flange.

A temporary Christmas tree was provided on the derrick floor for testing the first well, but it was soon necessary to remove this flow arrangement. A platform was built below pier deck and opposite the well foundation with seven feet of head room. A hole six inches by 20 inches was cut in the concrete foundation. This slot was cut so that it lined up with the tubing head of the completed well and cleared the H-beams in the foundation. The opening was high enough to permit use of a four-inch master gate valve on top of the tubing head. After running four-inch lines to the tubing and casing, a Christmas tree was built on the platfrom.

Second Well Operations

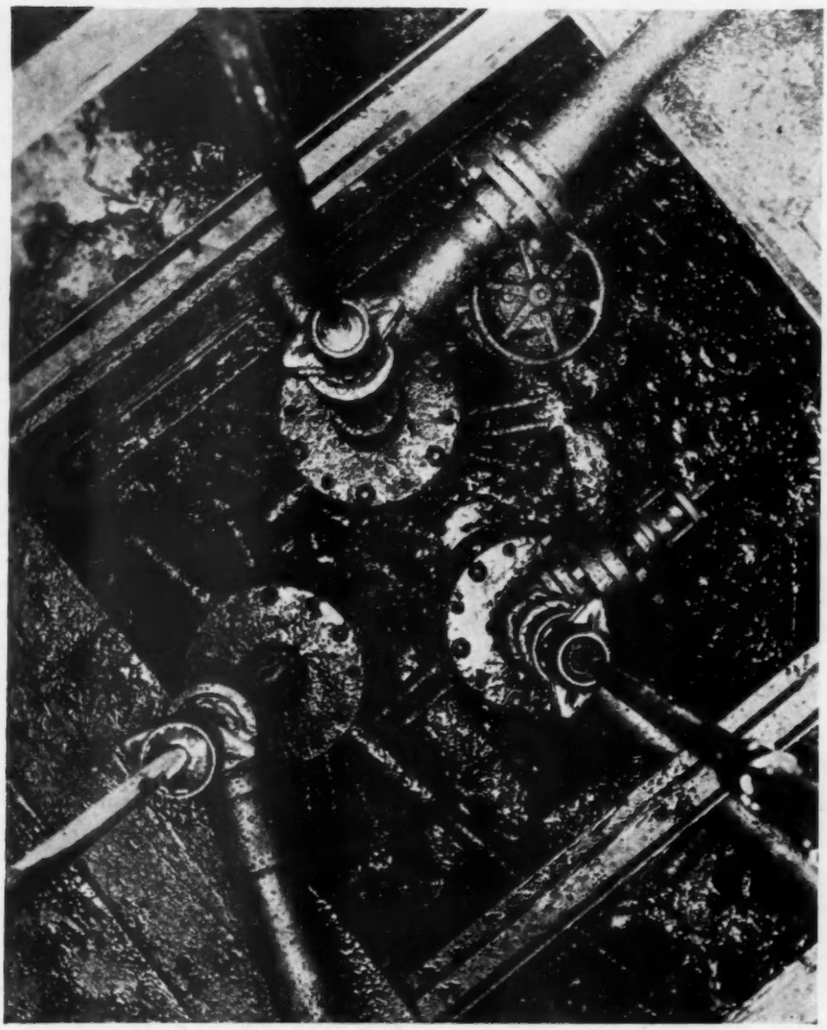
In starting the second well, the 18⅝-inch conductor pipe used in the first well was driven three feet into shale against one side of the 49-inch conductor. This placed the bottom of the 18⅝-inch in a position six-tenths of a foot on the draw works side and one foot toward the left from the center of the derrick. The top of the 18⅝-inch was pulled over toward the northwest and clamped parallel to and against the side of the 20-inch I-beams used in drilling the first well. At this point the inclination of the 18⅝-inch pipe was two degrees from vertical, inclining toward the southwest.

The rotary table was lined up by a shift six-tenths of a foot toward the draw works and 1.8 feet to the right from the derrick center. The draw works was moved 1.8 feet to the

right of its normal position. The crown was shifted six-tenths of a foot toward the draw works. With the equipment in this position, the second hole was drilled from 78 feet to 156 feet with a 17¼-inch bit, and with all the weight on the bit. The top of the 18⅝-inch conductor was pulled over to place it in line with the center of the derrick at a point six-tenths of a foot on the draw works side. The draw works was moved back to its normal position after the rotary table had been moved over the top of the 18⅝-inch casing.

the three. A four-inch offset was placed in the bottom 13 feet of the 18⅝-inch conductor pipe. The 18⅝-inch conductor pipe was driven three feet into the hard shale, with the bottom against the side of the 49-inch conductor and with the offset pointing toward the northwest at an inclination of 1¾ degrees.

The crown block and rotary table were moved six-tenths of a foot toward the draw works and nine inches to the right from the derrick center line. The draw works also was moved nine inches to the right, preparatory to drilling from 76 feet



The three wells when completed formed an isosoles triangle.

After drilling from 156 to 500 feet, 13⅜-inch casing was cemented. The 18⅝-inch conductor pipe was stripped off. The 13⅜-inch casing was drawn over to its final position and clamped to the 20-inch I-beams bolted to the I-beams on the first well on one side, and set on eight-inch H-beams on the other side. This arrangement placed the center of the 13⅜-inch casing 1.2 feet to the left and six-tenths of a foot from the derrick center on the draw works side. The draw works, crown and rotary table were moved 1.2 feet to the left of the rig center.

The well was drilled to the top of the Vaqueros and a string of 10¾-inch casing cemented. The producing zone was opened, liner run, and tubing landed as in the first well. A six-inch by 20-inch hole was cut through the concrete foundation in such a position that the top of the hole was in line with the bottom of the irons supporting the platform. The four-inch flow lines from the casing and tubing were brought through the opening.

The third well was in some respects the most interesting of the three. A four-inch offset was placed in the bottom 13 feet of the 18⅝-inch conductor pipe. The 18⅝-inch conductor pipe was driven three feet into the hard shale, with the bottom against the side of the 49-inch conductor and with the offset pointing toward the northwest at an inclination of 1¾ degrees.

The crown block and rotary table were moved six-tenths of a foot toward the draw works and nine inches to the right from the derrick center line. The draw works also was moved nine inches to the right, preparatory to drilling from 76 feet to 500 feet with fishtail bits and reamers. After cementing the 13⅜-inch casing at 500 feet, the 18⅝-inch section was stripped, and the 13⅜-inch pulled over against the 49-inch conductor in a position 1.1 feet to the right of and six-tenths of a foot toward the draw works, where it was clamped.

At this point the rotary table, crown and draw works were shifted 1.1 feet to the right of the center derrick line, and the rotary table and crown moved six-tenths of a foot toward the draw works. The well was drilled to the producing formation and completed in the usual manner, except that the flow lines from the casing and tubing of the third well came out through the conventional cellar opening.

The net result of the multiple drilling operation was the completion of three wells, with the holes at the surface forming an isosoles triangle. Each well is two feet apart. The achievement was a contribution to the drilling branch of the industry, and further established the value of directional work and elimination of expensive foundations in inaccessible places.

[Production Engineering]

Diesel Engine *Hook-Ups As Used In Southeast New Mexico* For Drilling

« BRAD MILLS »
Associate Editor

DIESEL power for drilling is proving effective in a number of areas in southeastern New Mexico, where low fuel and water consumption is desired. The three large Diesel outfits now in service south of the Hobbs field are operating under average well conditions, and their performance indicates that this type of equipment will fill a definite place in the development of isolated areas, or in fields having a limited supply of good water.

Recent improvements and refinements have added flexibility to Diesel performance. Both the direct-drive and electric-drive types are being used, and each has its advantages. An early fault with the Diesel installation was that it would not develop its full torque when throttled down to meet other requirements. Some of the engines now used in southeastern New Mexico can be operated from 100 to 450 revolutions per minute with a full torque throughout the speed range.

Low fuel and water consumption has reduced drilling costs at a number of Diesel-equipped locations in the Jal-Eunice-Hobbs district. Several wells have been drilled to a depth of 3800 feet with an average fuel consumption of 85 barrels of crude oil. Water consumption also has been very low. A number of these wells were drilled at locations several miles from a gas line. Transportation, water and fuel are distinct factors in such areas.

Amerada Petroleum Corporation's State D-1, New Mexico wildcat

Use of Diesel power in the oil industry is important, since it may stimulate activity in a number of remote districts that have been avoided because of scarcity of fuel and water, and because of the absence of roads that permit daily travel of considerable distance. Southeastern New Mexico is not extremely isolated, but the highways are very rough.

Noble Drilling Company, drilling for Amerada Petroleum Corporation about 14 miles southwest of Hobbs, is using a Diesel electric outfit. This wildcat test is located in the sand hills where water and fuel are scarce. The drilling company has designed and installed a number of accessories for use with the Diesel engines.

Two 250-horsepower engines are used. Each drives a 125-kilowatt generator through a 12-V-belt connection. The arrangement is such that the engines can be used together or separately. It also is possible to place both the pumps and draw works on one engine and generator. The generators deliver a maximum of 250 volts, all equipment around the rig using direct current. Each engine weighs about 37,000 pounds and delivers its rated horsepower at 400 revolutions per minute.

The drilling company is using a lubricating oil cooler of its own design. It consists of a five-foot section of 12-inch pipe, with the oil circulating through the section in smaller pipes. The large pipe section is filled with water.

A thermostat has been designed for shutting down the engines when too hot. The thermostat works on a magnetic principle, shutting off the fuel at a specified temperature of the water. A magnetically actuated switch for shutting down the engines when the oil pressure declines to an unsafe level has been designed and installed. The energized switch is positive in action and shuts off the fuel supply. An engineer with the company designed these safety devices. They have reduced the time and attention of the operator by 25 percent, and permit him to give more time to the electrical equipment outside the engine room.

The engines originally were equipped with radiators and fans, but a large outdoor tank is used in the water circulating system. Average water temperature during the winter months has been 85 degrees Fahrenheit inside the engines. Pressure on the fuel line to the cylinders ranges from 2500 to 5000 pounds per square inch. The engines are the six-cylinder, full-mechanical injection type.

Two 6¾x14 slush pumps are used. Each is driven by a 125-horsepower electric motor through a 6-V-belt connection. The pump and motor are mounted on a steel frame for portability.

The electric motor driving the draw works is a heavy

250-horsepower, 415-ampere type that develops its rating at 900 revolutions per minute. Blowers are used at the drilling and pump motors to reduce the gas hazard.

Vaughan Drilling Company has been using a Diesel drilling outfit in the Eunice area, and has been very successful in its drilling operations. Two 225- to 350-horsepower Diesel engines with direct drive through a heavy transmission are being used. The variation in horsepower rating is caused by a variety of methods employed in determining actual power delivery. The engines normally are rated as the 240-horsepower type at 450 revolutions per minute. This rating applies conservatively, since each engine is able to deliver such a horsepower under continuous service. The engines are rated at 225 horsepower at 425 revolutions per minute, but a 350-horsepower rating applies at 450 revolutions per minute, if the less conservative method of determining horsepower by a short-period operating method is employed.

The engines are equipped with built-in air compressors. They also are equipped with specially designed governors for compounding the engines, or for working in other combinations. They operate at 100 to 450 revolutions per minute, and have full torque throughout the speed range. Normally one engine drives the draw works and the other operates the pumps.

The transmission is equipped with an air control mechanism for actuating the clutches. A one to one gear box for coupling both engines is provided. The right hand engine drives the draw works, while the left hand engine drives the pumps. While working in their usual positions each engine may be considered as a separate unit. The drilling engine drives through an engine clutch and a coupling to the multiple chain running from the engine shaft to the clutch shaft of the transmission. The power is picked up from the right end of the clutch shaft and sent by multiple chain to the draw works.

The left-hand engine drives either pump through the engine clutch and coupling. A jaw clutch is provided to change from one pump to another. The power is transmitted from the pump drive shaft to the pumps by multiple chain.

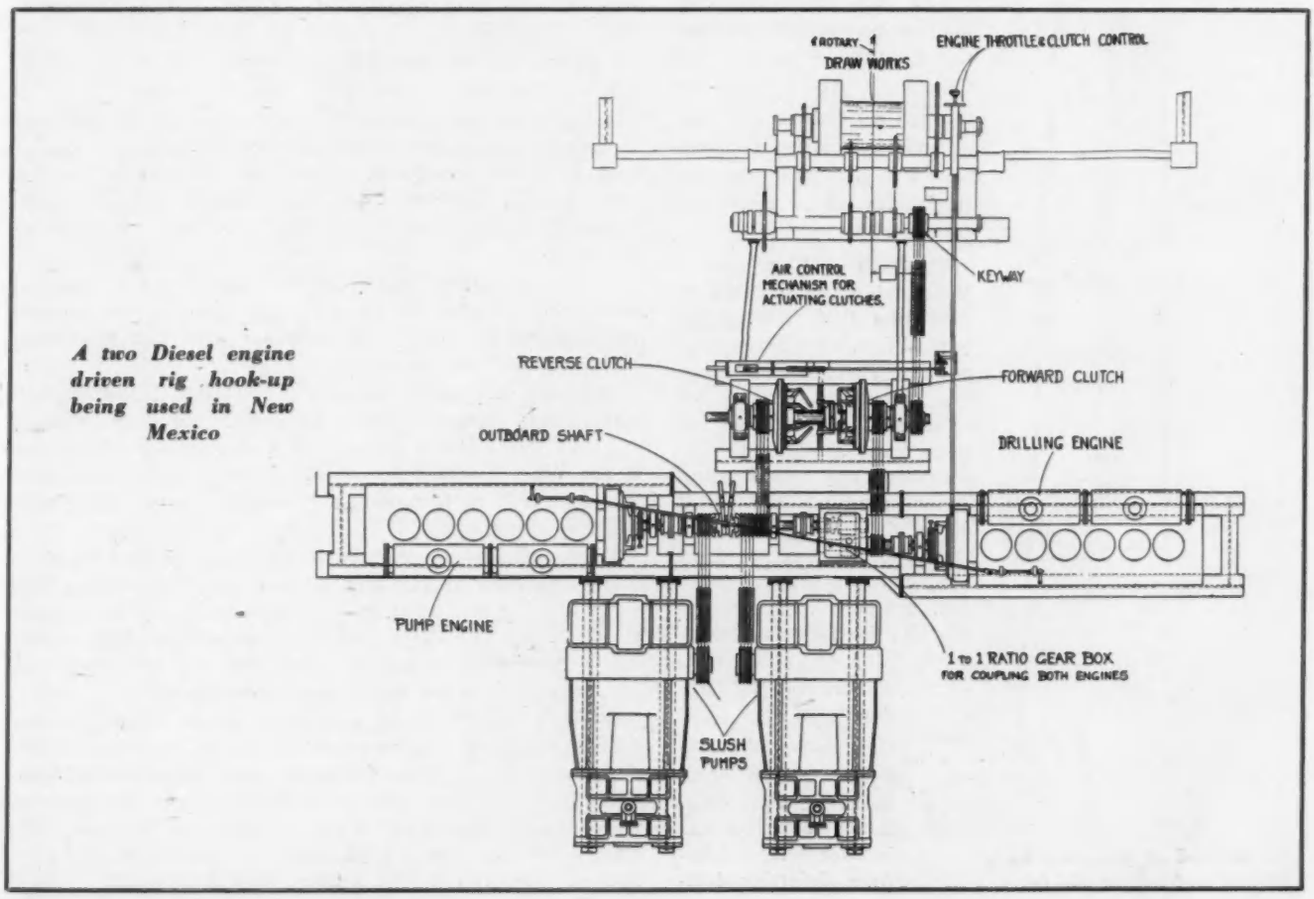
When both engines are required for hoisting, they are coupled together through a 1:1 gear box. This gear box obviously changes the direction of the power of the pumping engine and almost doubles the energy delivered. The increased power is available through either the forward or reverse clutches.

Vaughan Drilling Company also is using a 10-horsepower Diesel auxiliary unit that has proved very useful. It is a single-cylinder engine with open flywheel, and is started by hand cranking. It is used for operating the electric generator, compressor and washdown pump.

A number of wells have been drilled to depths of about 3800 feet in the Eunice area with a total fuel consumption of 75 to 90 barrels of fuel oil or crude oil per well.

Trinity Drilling Company, also operating in the Eunice area, is using two 160- to 250-horsepower Diesel engines for drilling power. These engines develop their rated horsepower at 500 revolutions per minute, but may be throttled down to 125 revolutions per minute. The conservative rating of these engines is 160-horsepower, but under the less conservative rating that does not take into consideration a full-load factor over a long period of time, 250 horsepower might be claimed. The manufacturer holds to the more conservative rating.

These engines are the direct-drive type, and transmit their power to the draw works through a transmission similar to that used by Vaughan Drilling Company and described in preceding paragraphs.



A two Diesel engine driven rig hook-up being used in New Mexico

Bottom-Hole Water Shut Off and Upper Horizon Tested By Deflected Drilling

AL BUCHANAN
Drilling Contractor, San Antonio, Texas

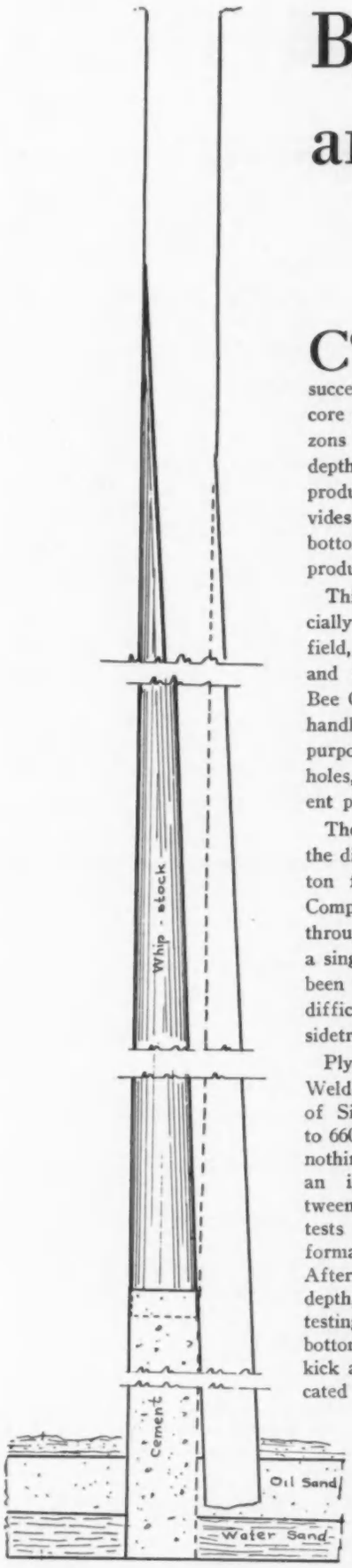
CONTROLLED directional drilling is being successfully employed to recore possible producing horizons passed at shallower depths in both wildcats and producing wells. It also provides a plan for cutting off bottom-hole water in many producers.

This work has been especially successful in the Sinton field, San Patricio County, and the West Tuleta field, Bee County. The manner of handling the wells and the purpose of the deflected holes, however, served different purposes in each field.

The final completion of the discovery well in the Sinton field by Plymouth Oil Company was effected through a sidetrack job. Not a single well in the field had been lost due to mechanical difficulties as a result of sidetracking.

Plymouth Oil company's Welder 1-A, discovery well of Sinton field, was drilled to 6602 feet, where it showed nothing. The test had logged an interesting section between 5400 and 5450 feet, but tests made at the time the formation was drilled failed. After reaching the total depth, an electric formation testing device was run from bottom to top, considerable kick and porosity being indicated at the 5400-foot level.

Exact information concerning the section was not available, hence the setting of a full string of casing and perforating opposite the possible level. Likewise, if further drilling was to be done, it was necessary to have data on the prospective zone for future correlations. Plugging back the hole to 5100 feet and setting a removable whipstock, the new hole was drilled to the desired formation and a producer resulted.



Method of plugging back and whipstocking

In sidetracking, however, several obstacles are to be overcome. One is to have a hole too far off perpendicular, or to drill into the old hole, or possibly to lose the whipstock in the hole and involve a fishing job. A removable whipstock is generally used in an open hole, such as the Sinton test. Modern surveying equipment greatly reduces the hazard of the crooked hole. If a crooked hole commences to develop. It is possible to set another whipstock in the sidetrack hole to again deflect bit and tend to straighten its course. Ordinarily holes are surveyed every 500 feet, but in sidetracking comparatively close above the possible producing horizon, it is important to survey at shorter intervals.

Figuring the degree of drift, the well can be logged so as to compare with an absolutely straight hole.

It has been the practice of some operators to drill important key wells on a block and pass through the regular sand in effort to obtain formation information on the lower levels. The wells are then plugged back and sidetracked hole drilled to the regular sand where a producer is completed.

Setting casing atop the producing sand in the sidetracked hole gives virtually the same drainage area in the producing sand as if casing had been set atop the producing horizon in the first hole.

The other method for re-drilling sands is to cut off bottom-hole water in producing wells. An illustration of this was Buchanan & Blanco Oil Company's P. Perez 2-A in the West Tuleta field of Bee County, which was completed at 3924 feet, making considerable water along with oil production.

The well was plugged back with cement and a whipstock cemented at 147 feet off bottom. The casing was milled out at this point and the hole re-drilled to a depth of 3917 feet, several feet off the known water level in the hole. A smaller string of liner was set and cemented, upon completion the well flowed pipe line oil.

While a crooked hole will to a certain degree hinder pumping at such time the well is placed on artificial lift, this obstacle has been materially overcome through the short deflected hole. Wells producing from this general horizon are pumped at least 100 feet off bottom, thus placing the working barrel above the point of the sidetracked hole and in the regular string of casing.

FOREIGN DEVELOPMENTS AND TECHNOLOGY

Historical Highlights On The Ontario Oil Fields

The principal producing oil fields of Ontario are, Petrolia, Oil Springs, Bothwell and Mosa.

Petrolia has been producing since 1863; Oil Springs since 1861; Bothwell since 1895; and Mosa since 1917.

While it is not generally known, the first oil well on the North American Continent was started in the Oil Springs field in 1858. The Drake well discovery in Pennsylvania, the following year, created the stimulus for drilling activities in Ontario, and the result was, oil in such abundance that wells flowed uncontrolled for days and much oil was wasted.

Wells came in for from 300 to 1000 barrels daily, up to 6000 barrels, and Black & Mathewson well came in for 7500 barrels daily. The oil floated away on Black Creek to a depth of six inches and formed a film on Lake Erie miles away.

The Ontario government has estimated that during the spring and summer of 1862, 5,000,000 barrels of oil were wasted. There was not much use for the oil, at that time, and the price was driven down to 10 cents a barrel, which, three years later, would have brought $10 per barrel.

The success at Oil. Springs encouraged exploratory drilling, and the Petrolia field was opened the following year. There were no methods for controlling the wells and the oil flowed over the countryside, with a consequent large loss of production, as at Oil Springs.

Oil Springs field has an area of about 1200 acres, with about 1000 producing wells. Petrolia, several times larger, has about the same number of wells. Bothwell, about the size of Oil Springs, has about 300 wells.

The Mosa field in Middlesex County, has an area of about 4000 acres, with something under 100 producing wells. About 25 percent of this field is proved, but is only about 14 percent developed.

The principal producer in the Mosa field is Dominion Petroleum Company, holding about 80 percent of the acreage, producing about 90 percent of the production, from about 70 percent of the wells in the field. Production comes from the Onondaga Limestone, which is found at depths ranging from 400 to 500 feet.

There is no over production of oil in Canada, and, consequently, no proration, as in the United States. Canada imports about 95 percent of the oil that is consumed, and the price for Mosa crude is the highest on the North American Continent; $2.37 per barrel.

Great Britain to Issue Drilling Regulations

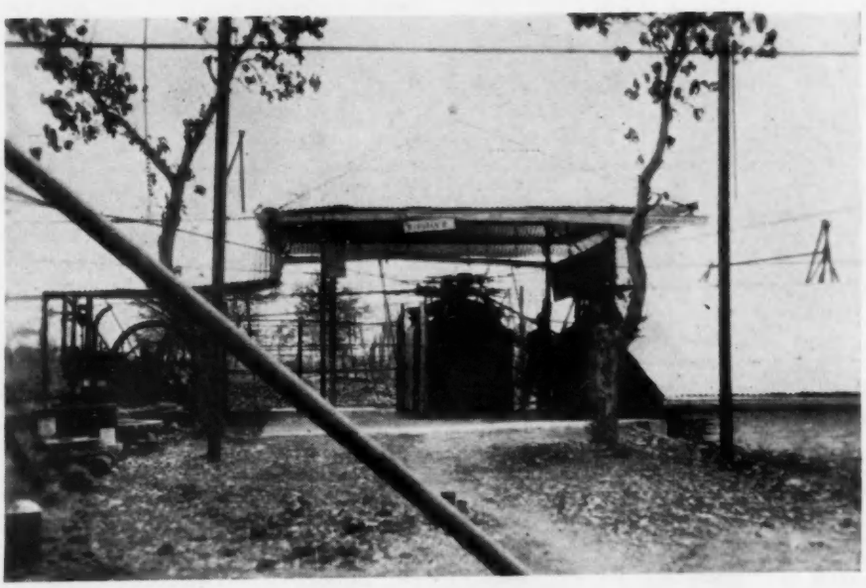
Regulations that will govern the conditions under which oil tests may be drilled in Great Britain are expected to be issued in the near future, according to "The Naft" magazine, published by Anglo-Persian Oil Company, Ltd. Under English government stipulations, the regulations must first remain in both houses of Parliament for 28 sitting days. After this period has passed and the regulations have received parliamentary sanction, the secretary for mines will consider applications for licenses.

Additional Data on Portable Gravimeter Measurement

Regarding the accuracy of the measurements with the portable gravimeter described in an article entitled "Testing the Portable Gravimeter," by Dr. A. Berroth, which appeared in THE OIL WEEKLY March 13, Dr. St. v. Thyssen and Dr. A. Schleusener of Hannover, Germany, have submitted the following additional information, which data was received during field work with the German Government Survey.

The gravimeter surveys for the German government are being conducted with gravimeters No. 4 and 5, while the measurements published in THE OIL WEEKLY of March 13 were taken with experimental instrument No. 3.

The total number of field stations now amounts to 450. By these measurements a mean error of plus or minus 0.3 milligals (compensated values) per station could be obtained. This accuracy is about twice as good as data presented in the article of Dr. A. Berroth, on which the interesting comment of Dr. Donald C. Barton (published as footnote to Berroth's



A central power in Southern Java.

article) is based. The closure of a sufficient number of circuits, states Messrs. Thyssen and Schleusener, is a good proof of the accuracy of the measurements. The following data of circuits is presented

Closure of Gravimeter Circuits

Circuit No.	Length of Circuits Miles	No. of Stations	Closure	Mean Error Not Compensated
1	125	11	+2.0	±0.6
2	130	14	+0.35	±0.09
3	80	5	−0.2	±0.09
4	60	4	+0.75	±0.4
5	50	3	+0.45	±0.3
6	50	3	+0.65	±0.35
7	40	4	−1.35	±0.65
8	40	5	−0.15	±0.07
9	25	3	−1.2	±0.7
10	45	3	+1.25	±0.7

without any adjusting of the original values received.

It may be mentioned that the portable gravimeter sensitivity has been increased to 0.02 mgal and that during normal field work many stations have shown a mean error of 0.1 mgal.

New Deep Test to Be Drilled at Zistersdorf

A letter from Vienna, Austria, states that a new deep test using rotary drilling equipment will start at Zistersdorf soon.

The Zistersdorf prospect was discovered by Raky-Danubia's Gosting well, completed in 1932 in formation identified as the Flysch, in the Upper Cretaceous or Lower Eocene.

The second well completed on the prospect had a reported initial production of 170 barrels from 2000 plus feet, but its performance subsequent to completion has been disappointing. Oil in the latter well was believed to have been recovered from the Sarmatic.

New Discoveries Improve Germany's Outlook for Oil

Drilling operations in the oil fields of the Province of Hannover, Germany, continue to be active, according to W. A. Leonard, American Consul at Bremen. In addition to the new oil field opened in the district of Hoheneggelsen-Molme, between Hildesheim and Braunschweig, which was published in a recent issue of The Oil Weekly, there have been other strikes. The Hoheneggeslen-Molme discovery, which was Gewerkschaft Elwerath's Wachtel 5, is reported producing approximately 200 barrels per day.

Mr. Leonard states that Internationale Tiefbohr A. G., Celle, has found a well capable of producing 280 barrels per day in the Nienhagen field. The depth is 1100 meters. The same company has completed a 70-barrel well as 300 meters in the Oberg field. Another company, Erdoelbergbau A. G., Celle, has also found a 70-barrel well at 300 meters in the Oberg field.

The Province of Hannover contains the largest producing fields in Germany, and an accompanying table shows the production of the various fields in the province by months during the year 1934.

From the table it will be noted that the production of the Nienhagen-Hanigsen field increased 670,831 barrels, or approximately 66 percent over 1933. The Wietze-Steinforde field's production during 1934 remained practically level with that of 1933, while that of the Eddesse-Oberg field decreased 95,585 barrels or approximately 40 percent.

German authorities are encouraging the exploitation of German oil fields. The assistance rendered consists of the granting of long-termed credits on certain conditions. Credits amounting to about 5,000,000 Reichsmarks already have been granted by the authorities through the German Association for Public Works. Such credits, it is understood, are given for a period as long as 20 years at five percent interest.

Fields of Production in Barrels

1934	Nienhagen-Hanigsen	Wietze-Steinforde	Eddesse-Oberg	Total
January	99,792	30,702	14,798	145,292
February	90,174	28,784	12,635	131,593
March	106,743	31,325	14,028	152,096
April	126,987	29,890	12,194	169,071
May	116,914	30,534	11,655	159,103
June	130,956	30,401	11,123	172,480
July	159,551	31,066	10,528	201,145
August	171,878	31,388	9,695	212,961
September	154,616	28,504	8,246	191,366
October	180,012	30,023	10,570	220,605
November	170,485	30,842	11,158	212,485
December	177,023	29,659	15,085	221,767
Total	1,685,131	363,118	141,715	2,189,964
Total 1933	1,014,300	376,600	237,300	1,628,200
Increase or decrease in bbls.	+670,831	−13,482	−95,585	+561,764
Increase or decrease in percent	+66.1	−3.6	−40.3	+34.5

U. S. Again Protests Manchukuo Monopoly

Washington, D. C.—Protest that the Manchukuoan oil monopoly is in violation of existing treaty provisions and the "open-door" policy was filed with the Japanese government April 18 by the state department.

It was announced by the department that Ambassador Grew at Tokio had been instructed to inform the Japanese foreign office of the Washington government's views.

The note climaxed a long interchange of views which followed the announcement some time ago that Manchukuo would nationalize the oil industry on April 10. Similar representations have been made by the Netherland and British governments.

It was explained that the protests were filed with Japan as the sponsor of the new empire of Manchukuo, which is not recognized by this country, but Japan in reply has held that since Manchukuo was an independent state representations should have been sent to that government.

It is the contention of the oil companies that their large investments in Manchukuo are endangered by the new monopoly law and that they would lose the future profitable business at which they have been aiming over many years.

Start New Test in Northeastern Mexico

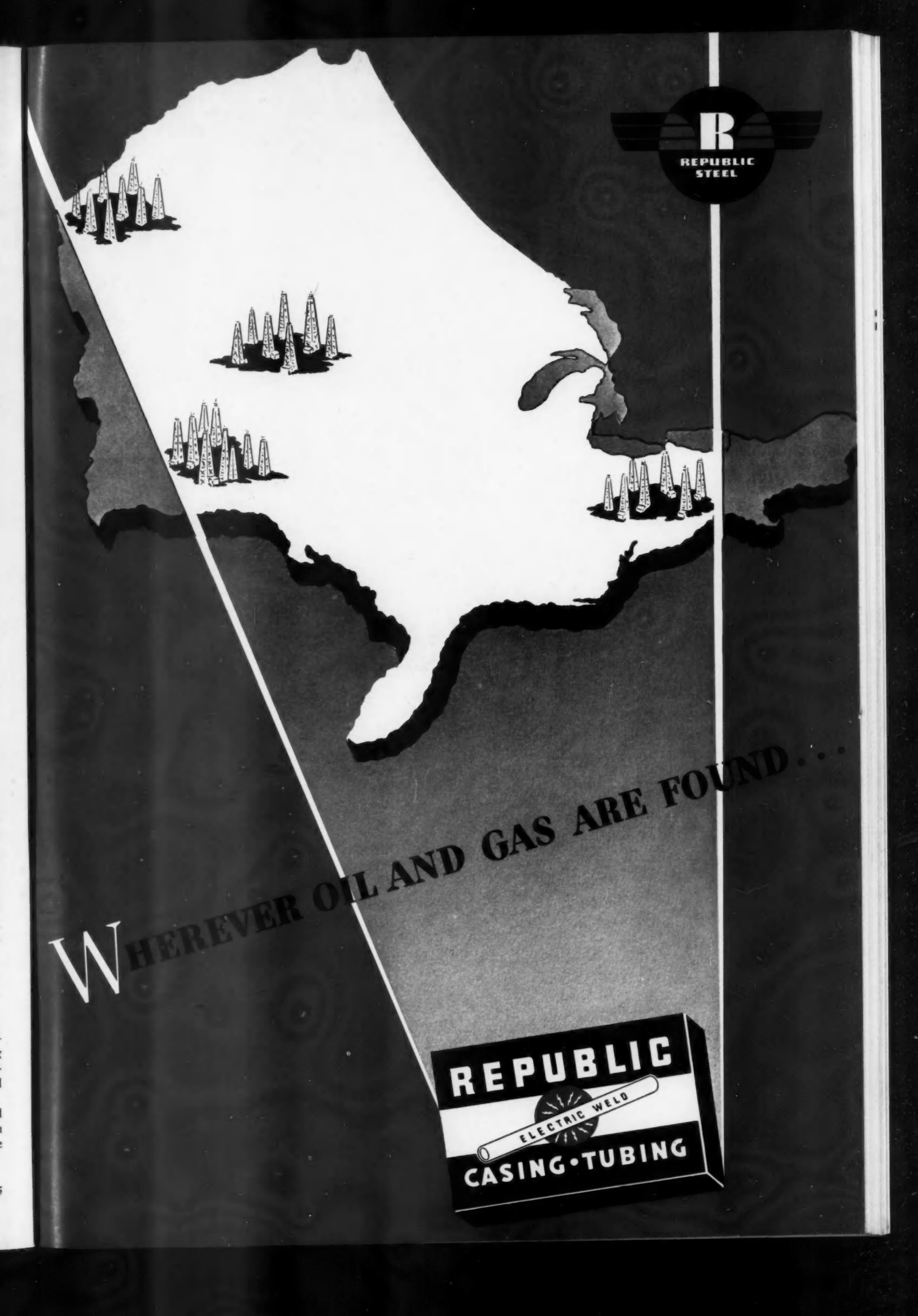
Navarro & Smith's Rancho La Uvas 1, newest Northeastern Mexico wildcat, spudded in March 31 and on April 10 was drilling near 200 feet. It is a cable tool job, and is contracted to about 3500 feet, the entire drilling section of be through lime. The well is located 16 miles south of the town of Allende and is in the State of Coahuila, Mexico.

The deepest well thus far drilled in the northeastern part of the country is Mexican Gulf Petroleum Corporation's San Ambrosia 1, 40 miles southwest of Nuevo Laredo, in the State of Nuevo Leon. It is down 9315 feet, but likely will be carried deeper.

Steaua Romana Using Electrical Prospecting

Steaua Romana, one of the major operators in Rumania, has concluded a long term contract with an electrical prospecting company for work on proved and wildcat properties.

For a two year period ending in the fall of 1934, electrical prospecting had been done for Steaua Romana by Compagnie General de Geophysique.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MARKETS and STATISTICS

Crude Market Strong as Gasoline Prices Advance

THE market situation in the oil industry has continued particularly rosy. Gasoline tank car prices advanced further last week in the Mid-Continent, in the upward movement that has been under way for two months. And there were no unfavorable influences to indicate that the rise would be arrested in the immediate future.

Along with higher tank car prices there has come improvement in service station postings throughout the country east of the Rockies.

The booming gasoline market of the Mid-Continent has brought the wholesale and retail gasoline prices into a more satisfactory relationship with crude, and there is increasing talk of the possibility of higher crude postings.

The hopes for higher crude prices are based not altogether on the continued improvement of gasoline wholesale and retail prices, but also in part on a more tangible factor, increased competition of crude purchasers in seeking new well connections. In East Texas, especially, there has been active bidding for connections; while the demand has also been increasing in other areas of the Mid-Continent.

In California the markets are still unsettled. But plans are being contemplated for a revised marketing agreement, and there is considerable hopefulness that a stabilized market will be achieved soon.

The long-sustained rise of Mid-Continent tank car prices has brought the quotations to the highest levels since the fall of 1933. Prices that prevailed the latter part of last week were generally one-eighth-cent per gallon higher than prices a week earlier.

In Group Three (Oklahoma) region, U. S. motor gasoline prices were averaging as follows: third grade, below 62 octane, 4½ cents a gallon; standard grade, 62-67 octane, 5 cents; and premium grade, 68-70 octane, 5¼ cents. All three grades had advanced one-eighth-cent above the previous week's levels.

In East Texas and North Texas, the premium grade remained, as in the previous week, at 5⅛ cents a gallon. But the two lower grades for both areas advanced one-eighth cent, the third grade being quoted at 4⅛ cents in both East and North Texas, while standard grade averaged 4⅞ cents.

The strong tank car market reflects particularly the extensive buying that the major companies have been carrying on.

Last week's prices also reflected, perhaps, the pronounced reduction of refining operations in East Texas that took place around April 17. At that time hot oil refining was reduced to a very small volume for a brief time, presumably as a move in the fight against the Thomas federal control bill. (During the hearing, there was used to advantage by opponents of the bill the contention that hot oil output in East Texas was down to a very small volume.)

Subsequently, however, the hot oil volume has been on the increase. Railroad commission records showed that on April 21 there were 20 plants operating in East Texas, of which 17 were using only tendered crude, while three were indicated to be using untendered crude. The plants using untendered crude had increased the next day to seven and the following day to 10, while those operating on tendered crude still numbered the same, 17.

Reports on hot oil output for last week varied, but it was indicated that the average was at least 20,000 barrels daily.

East Texas Tank Car Shipments

Week Ending April 21, 1935

Products—	No. Cars	Estimated Gallons
Gasoline	553	4,484,763
Fuel Oil	171	1,622,267
Casinghead Gasoline	133	1,164,466
Gas Oil	58	483,935
Distillate	58	477,662
Residuum	35	321,667
Kerosene	24	196,563
Topped Crude	3	30,332
Naphtha	2	16,223
Total	1,037	8,797,878
Total Prev. Week	1,090	9,336,160
Interstate	547	
Coastwise	267	
Intrastate	223	
Total	1,037*	

* All products supported with tenders, except 18 cars fuel oil.

It was reported that 25 independent refineries in East Texas had been enjoined by the state with district court injunctions, but the court action apparently has no material effect on the plants.

The hot gasoline put out by the East Texas plants is being confined principally to the markets within the state available by truck movements. Material so moved is understood to be selling at two to three cents a gallon at the refineries. The pressure of that under-priced gasoline has caused repeated protests on the part of independent service station owners, who assert that they are being ruined by this competition, while trying to operate on legally produced gasoline. Two bills are pending in the Texas legislature, aimed at eliminating the illegal gasoline trucking.

Market in California Is At Deciding Point

THE California market situation is in the throes of a change, which means a stabilized condition for the next 60 days or a generally demoralized situation. The agency agreement, which expires in June, came near a complete break early in April, but at this time a new plan is being formulated that calls for posting of bonds to guarantee that every member lives up to agency requirements in every particular. Practically every agency member has come to terms. The holdouts probably will come to terms before May 1.

In the meantime official retail gasoline prices are in effect at close to 98 percent of all stations. Those selling at cut prices represent a very small percentage of the whole. Members of the Retail Petroleum Dealers Association in Southern California continue to demand the right to sell gasoline at retail at one cent under the price maintained by major company retail outlets, and it is probable this right will be given before the present fight is ended.

The tanker strike is still in progress on the West Coast, although many tankers are moving, manned by non-union crews. Some trouble is being experienced, since there is a certain element friendly to strikers that is harassing property and employes of companies owning the tankers. In some instances service stations have been damaged. State police found a supply of dynamite in the hands of

certain parties, who professed innocence, which might have been obtained to dynamite a major company pipe line. This was largely surmise.

Tanker shipments in March were less than in March of a year ago, but the daily average movement was not off to a degree that would cause apprehension. The movement of fuel oil through Panama Canal is off considerably, but consumption on the West Coast is up and movement is up to Pacific Foreign.

There is no weakness evident in prices asked for products for offshore movement, indicating that holding companies on the West Coast are not worried over the future, as they feel that prices will be better.

Barnsdall Buys Half Interest at Samfordyce

San Antonio, Texas.—Barnsdall Oil Company purchased half interest in Kingwood Oil Company's holdings in the Samfordyce area. The consideration was $140,000. The consideration also included half interest in the pipe line which runs in the area. Barnsdall Oil Company will take charge of the operations in the field.

Mid-Continent Gasoline Market Remains Firm

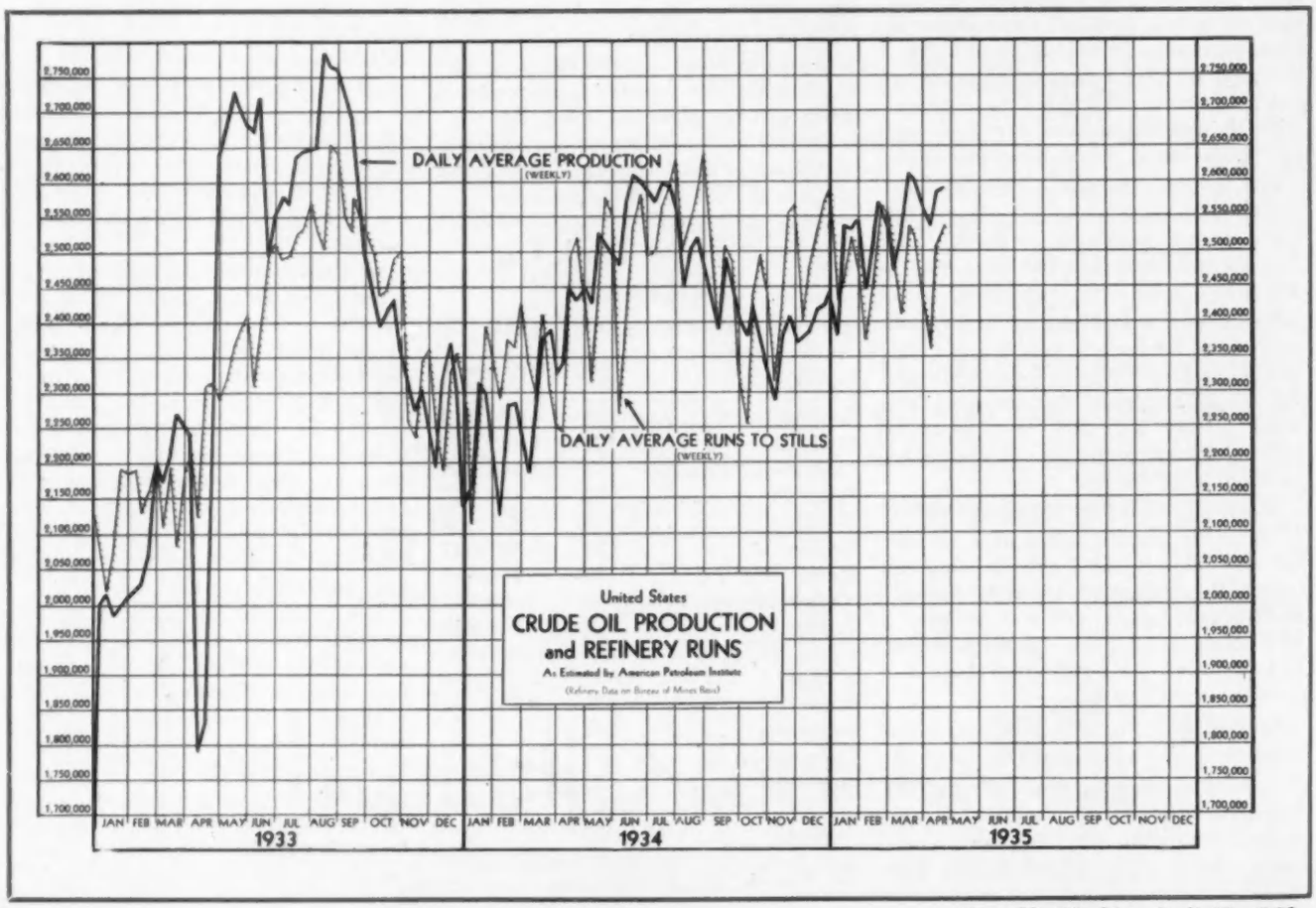
THE Mid-Continent tank car spot market on third grade U. S. motor fuel, 62 and below octane, was firm during the week with the absolute low at 4½ cents per gallon, an eighth of a cent advance over the level of the preceding week. Jobber margins had narrowed to a point which induced maximum buying under contract which in turn increased the amount of interrefinery buying to supply this demand.

From a general demand standpoint conditions appeared not to have changed materially during the week although reports indicated that spring buying had started in the agricultural sections of the middle west. The East Texas situation so far as group 3, Oklahoma markets were concerned, was in good condition. One observer estimated that about 1200 cars of outside buying per month in the East Texas area would keep that market in line.

The entry of Esso Inc., into the St. Louis area has created a considerable amount of speculation. This was being interpreted by some as the first step by Standard Oil Company (New Jersey) through its subsidiary the Mission Corporation, of entering the operation of the marketing department of Skelly Oil Company. One of the three St. Louis retail stations now operated by Esso Inc. was reported to be a Skelly station.

East Texas Hot Oil Plants Resume Runs

BRIEF holiday taken by East Texas refineries and skimming plants that specialize in processing illegally produced crude beginning April 17 and partially observed for about one week afterward has been abandoned. Eleven of the 27 operating plants were charging their stills with untendered products late last week and production of hot oil is again on the upturn. Volume of illicit production in the field was estimated in quantities varying from 10,000 to 250,000 barrels daily towards the close of the week. Reports indicate that plant owners are paying an average of 25 cents per barrel for crude produced in violation of proration rules and are reaping big profits through the tank truck price sale of



gasoline derived from this contraband product having been substantially improved as result of the temporary reduction in such activities.

The holiday was taken supposedly to aid opponents of the Thomas bill now awaiting disposition at Washington to produce evidence that the hot oil situation in Texas had ceased to become a market factor. From 16 to 17 plants in East Texas are observing the rules of the state and federal authorities and are registering a profit on their operations as result of the majors absorbing virtually all the tendered gasoline produced by the group.

Their 400 end point gasoline was commanding a price of 4⅜ cents per gallon late last week while tendered fuel oil was selling at 55 to 60 cents per barrel. Late week checkup revealed that several majors had made unsuccessful attempts to place orders for gasoline at the above quotation. Owners of plants operating on tendered products have deserted the tank truck market, which is the only outlet available for those operating on hot oil.

Gasoline Price Reduction Only at Service Sacrifice

Helena, Mont. — Gasoline prices in Montana cannot be reduced unless motorists in that state are willing to forego the conveniences of the modern service station where they usually get free air, free water, washrooms and lavatories, free oil-draining and greasing service, and the other services which the public demands of modern filling stations.

This was the verdict of the Select Committee on Price of Gasoline of the Montana House of Representatives, which made a study of gasoline prices in that state.

"The public has demanded certain services in connection with automobiles stopping at filling stations, and, of course, if we are to receive these services, we must pay for them. If, on the other hand, we are willing to forego these services, we can, in the judgment of your committee, reduce the price of the cost of gasoline throughout the state of Montana, but, as heretofore stated, this will mean the elimination of employment for a great many of our citizens," it stated.

The Committee found that the average cost of refining of all companies operating in the state was approximately 8¼ cents a gallon for first grade gasoline. To this it is necessary to add six cents a gallon for the federal and state gasoline taxes. Under the petroleum code the dealers' margin of profit is four cents a gallon, making the total price of the gasoline 18¼ cents a gallon, to which must be added the costs of transportation from the refinery to the dealer, which averages three cents a gallon.

Segregation of Barnsdall Corporation Approved

Tulsa.—Segregation of the refining and marketing branches from the production and pipe line activities of the Barnsdall Corporation was approved, April 26, at a meeting of the board of directors. In a statement E B. Reeser, president, explained that the move was designed to separate activities of the company so that the gains made by one branch might not be overcome by the losses of another. The proposal had been approved by the executive committee and consummation of the reorganization is now a matter of formality with a stockholders meeting to be called some time in the near future.

June 31, 1935, Barnsdall Refining Corporation will begin business with a capital stock of 1,129,000 shares arranged through the exchange of one half share of the new stock for each share of Barnsdall Corporation. The new stock will have a par value of $1 per share. Officers in charge of the refining and marketing branches of Barnsdall Oil Corporation will have charge of operations until permanent officers are elected. L. D. Messer, company treasurer, has been chosen a director succeeding George R. Hann.

Brownsville Port Area Looks to Oil Tonnage

San Antonio, Texas.—Pressure is being put to bear to have the proposed deep water port development in the vicinity of Brownsville increased in depth to 30 feet, making it a Class A port. The increased oil development in the Lower Rio Grande Valley is the main basis for this possible deepening of the channels now under construction.

The brief, containing a report of probable tonnage, etc., on the basis of industrial and oil shipments expected to be handled through the port, has been submitted to Colonel E. H. Marks, district engineer at Galveston. It shows a large increase over past reports.

United States Crude Oil Production Shows Decline

UNITED STATES crude oil production declined last week, that is the week ending April 27, falling 25,225 barrels under the daily average of the previous week. The new rate of output was 2,560,450 barrels daily. That figure was, however, still in excess of the federal government recommendation by 33,150 barrels daily.

The lower production of last week, as compared with the previous week,

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

District or State	Barrels Daily for Week Ending Apr. 27	Apr. 20
TEXAS—		
Texas Panhandle	65,200	60,650
North Texas	58,200	57,800
West Central Texas	23,500	24,500
West Texas	152,800	151,800
East Central Texas	49,800	49,500
*East Texas Field	444,300	441,600
South Texas	61,600	61,100
Texas Gulf Coast	177,600	178,700
*Total Texas	1,033,000	1,025,650
OKLAHOMA—		
Oklahoma City	163,875	176,325
Seminole Area	131,200	135,550
Tatums	5,000	5,000
Lucien	10,250	10,175
Fitts	13,575	14,175
Others	198,850	195,900
Total Oklahoma	522,750	537,125
KANSAS—		
Ritz-Canton	10,925	9,350
Voshell	4,625	5,000
Nikkel-Hollow	12,800	9,875
Sedgwick	8,625	8,425
Burrton-Haury	20,650	21,850
Others	88,375	92,050
Total Kansas	146,000	146,550
LOUISIANA—		
North Louisiana	22,200	22,700
Louisiana Gulf Coast	99,900	99,100
Total Louisiana	122,100	121,800
ARKANSAS	31,500	31,250
CALIFORNIA—		
Long Beach	60,000	68,000
Santa Fe Springs	34,500	36,500
Huntington Beach	36,500	40,000
Dominguez	19,000	19,500
Inglewood	9,500	12,000
Ventura Avenue	13,500	14,000
Seal Beach	7,000	7,500
Midway-Sunset	52,000	54,000
Elwood	9,500	8,500
Kettleman Hills	50,000	55,000
Mountain View	10,000	8,500
Playa del Rey	12,500	9,500
Others	146,000	148,000
Total California	460,000	481,000
MOUNTAIN STATES—		
Wyoming	36,600	35,900
Montana	10,700	10,800
Colorado	4,900	5,100
Total Rocky Mountain States	52,200	51,800
NEW MEXICO	49,900	46,900
EASTERN STATES	105,100	106,100
MICHIGAN	37,900	37,500
*Total United States	2,560,450	2,585,675
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	20,000	25,000
Grand total including surreptitious production	2,580,450	2,610,675

Crude Runs to Stills; Finished and Unfinished Gasoline; Gas and Fuel Oil Stocks and Cracked Gasoline Production, Week Ended April 20, 1935

(Figures in thousands of barrels of 42 gallons each.)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		Stocks of Finished Gasoline			(a) Stocks of Unfinished Gasoline	(b) Stocks of Other Motor Fuel	Stocks of Gas and Fuel Oil	Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
	Potential Rate	Reporting		Daily Average	% Operated	At Refineries	Bulk Term., in Trans. & Pipe Lines	Total at Refys., Term., etc.				Potential Rate	Reporting		Daily Average
		Total	%										Total	%	
East Coast	582	582	100.0	436	74.9	7,134	10,308	17,442	756	215	9,017	496	471	95.0	70
Appalachian	150	140	93.3	107	76.4	1,238	822	2,060	331	120	777	69	69	100.0	25
Ind., Ill., Ky	446	422	94.6	341	80.8	6,681	2,920	9,601	732	50	4,075	325	309	95.1	101
Okla., Kans., Mo	461	386	83.7	267	69.2	3,378	2,173	5,551	689	390	4,007	256	238	93.0	69
Inland Texas	351	167	47.6	92	55.1	1,312	137	1,449	210	705	1,776	82	66	80.5	24
Texas Gulf	601	587	97.7	505	86.0	6,807	152	6,959	1,729	285	8,950	358	355	99.2	104
Louisiana Gulf	168	162	96.4	101	62.3	990	475	1,465	219	.....	3,108	71	71	100.0	19
North La.—Ark.	92	77	83.7	43	55.8	159	85	244	35	170	311	41	38	92.7	8
Rocky Mountain	96	64	66.7	46	71.9	974	.....	974	108	50	765	46	42	91.3	11
California	848	822	96.9	448	54.5	8,732	1,388	10,120	942	2,710	64,460	209	209	100.0	48
TOTALS WEEK: April 20, 1935	3,795	3,409	89.8	2,386	70.0	37,405	18,460	55,865	5,751	4,695	97,246	1,953	1,868	95.6	479
April 13, 1935	3,795	3,409	89.8	2,355	69.1	37,948	18,160	56,108	5,715	4,585	98,331	1,953	1,868	95.6	470

Below are set out estimates of Crude Runs and Cracked Gasoline Production on B. of M. Basis for Week Ended April 20, 1935 compared with April 1934 Bureau figures.

Estimate B. of M. Basis, April 20, 1935	2,535		535
Estimate B. of M. Basis, April 13, 1935	2,505		525
U. S. B. of M., April, 1934: Daily Average Crude Runs	2,452	U. S. B. of M., April, 1934: Daily Average Cracked Prod.	485

(a) Amount of Unfinished Gasoline contained in Naphtha Distillates.
(b) Estimated. Includes Unblended Natural Gasoline at refineries and plants; also Blended Motor Fuel at plants.

was due to material declines in California and Oklahoma. Kansas and Louisiana showed but slight changes, while Texas production increased over 7000 barrels daily.

The declines for California and Oklahoma were occasioned by the usual dropping off for the latter part of the month, in compensation for excesses earlier in the month.

California's new production rate was 460,000 barrels daily, or 21,000 barrels less than in the previous week. The state was substantially under its federal allocation, which is 493,300 barrels daily.

Oklahoma last week averaged 522,750 barrels daily, about 15,000 barrels a day less than in the previous week, but substantially more than the 493,300 barrel daily allocation from the federal government.

Kansas averaged 146,000 barrels daily last week, which was 550 barrels a day less than in the previous week. The allocation is 141,000 barrels daily.

Louisiana production rose last week to 122,100 barrels daily, from 121,800 barrels the previous week. The federal allocation for the state is 111,000 barrels per day.

Texas output of 1,033,000 barrels per day compared with the previous week's rate of 1,025,650 barrels daily, and with a federal allocation of 1,021,000 barrels.

In addition to production indicated in the above figures, it was estimated that surreptitiously produced oil, largely in East Texas, amounted to about 20,000 barrels daily. Such output in the previous week had averaged about 25,000 barrels daily, it was indicated.

Independent Association Adds Royalty Division

Tulsa.—The Independent Petroleum Association of America has added a royalty division with a committee composed of J. R. Simpson and Carl R. Blackman of Tulsa, S. A. Delaplane of Ponca City, E. L. Bradley of Wichita, Kansas, P. N. Wiggins, Jr., of Dallas, R. J. St. Germain of Houston, and R. G. Carr of San Angelo.

Austin, Texas.—A bill giving the State Comptroller greater authority in the collection of gasoline taxes was passed by the House of Representatives last week.

Panhandle Natural Gasoline Output Steady

Pampa, Texas.—Natural gasoline production in the Texas Panhandle during March was estimated at 27,263,460 gallons, representing a gain of 1,769,670 gallons over the yield during the short month of February. Rapid gains in production scored during 1934 by the district appear to have been checked, unless additional natural gasoline plants are erected. Production for the district reached a high mark of 28,114,800 gallons last November.

Comparison of Permits Granted for New Wells

STATE—	Week Ending April 20	Total this Mo.	Total this Year	Total this Date Last Year	1934 Year Total
Arkansas.	3	6	50	14	100
California	16	50	258	142	629
Louisiana.	25	67	252	235	799
Kansas...	22	61	437	266	1,015
Michigan.	21	38	131	146	460
Oklahoma	61	170	702	647	2,045
Texas....	108	660	3,953	2,688	10,550
Totals..	256	1,052	5,783	4,138	15,598

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to April 26, 1935)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$ .84	2¢	40—$1.08	9-29-33
N. and N.-C. Texas	28— .79	2¢	40— 1.03	9-29-33
Texas Panhandle				
Gray County	34— .79	2¢	40— .91	9-29-33
Carson-Hutchinson	34— .69	2¢	40— .81	9-29-33
West Texas				
Ector, Pecos, Wk'lr	*.75			9-29-33
Crane, Upton, Howard and Glasscock	*.70			9-29-33
East Texas	*1.00			9-29-33
Texas Gulf Coast				
Conroe	35— 1.09	2¢	40— 1.19	9-29-33
Tomball	*1.15			9-29-33
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia,	Below			
Humble, Rabbs Ridge	20— .82	2¢	34— 1.12	9-29-33
South and S.W. Texas	Below			
Refugio (Light)	20— .82	2¢	34— 1.12	9-29-33
Refugio (Heavy)	*.85			9-29-33
Saxet	*.85			9-29-33
Mirando	*.80			9-29-33
Pettus	*1.05			9-29-33
Salt Flat	*.87			9-29-33
Darst Creek	*.87			9-29-33
Arkansas				
El Dorado (Light) and Rainbow	29— .79	2¢	40— 1.03	3-17-34
El Dorado East Field and Smackover	*.70			9-29-33
North Louisiana	29— .79	2¢	40— 1.08	9-29-33
Urania	*.85-*.87			1- 1-34
SouthLouisiana	Below			
Lockport	20— .80	2¢	34— 1.10	9-29-33
	Below			
Iowa, Cameron Mds.	20— .70	2¢	34— 1.00	9-29-33
Rocky Mountain States				
Salt Creek	29— .84	2¢	40— 1.08	9-29-33
Elk Basin	*1.17			9-29-33

*All gravities—flat rate.
†Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Grass Creek (Light)	*1.17			9-29-33
Big Muddy	*$1.01			9-29-33
Rock Creek	*1.02			9-29-33
Sunburst	*1.35			9-29-33
Lance Creek	*1.02			8-25-33
Osage	*.62			8-25-33
Cat Creek	*.45			8-25-33
Pondera	*.65			8-25-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	*.75			9-29-33
Mid-West States				
Lima	*1.15			2- 1-35
Illinois	*1.13			1- 5-34
Princeton	*1.13			1- 5-34
Western Kentucky	*1.08			5-26-34
California				
Signal Hill	14— .65	1¢	16— .66	9- 6-33
	17— .69	2¢	22— .84	9- 6-33
	23— .88	3¢	30— 1.09	9- 6-33
Seal B., Alamitos Hts.	19— .65	3¢	20— .68	9- 6-33
	21— .72	4¢	22— .76	9- 6-33
	23— .81	4¢	26— .93	9- 6-33
	27— .98	4¢	30— 1.10	9- 6-33
Huntington Beach	14— .65	4¢	15— .69	9- 6-33
	16— .72	3¢	19— .81	9- 6-33
	20— .83	3¢	28— 1.07	9- 6-33
	29— 1.09	3¢	30— 1.12	9- 6-33
Inglewood	14— .65	4¢	16— .73	9- 6-33
	17— .76	4¢	18— .80	9- 6-33
	19— .83	4¢	20— .87	9- 6-33
	21— .90	4¢	22— .94	9- 6-33
	23— .97	4¢	24— 1.01	9- 6-33
Playa del Rey	14— .65	1¢	15— .66	9- 6-33
	16— .69	4¢	17— .73	9- 6-33
	18— .76	4¢	19— .80	9- 6-33
	20— .83	4¢	21— .87	9- 6-33
	22— .90	4¢	23— .94	9- 6-33
	24— .97	3¢	25— 1.00	9- 6-33
			26— 1.04	9- 6-33
Olinda-Brea Canyon	14— .65	4¢	16— .73	9- 6-33
	17— .76	3¢	28— 1.10	9- 6-33
Athens-Rosecrans Domingues	23— .83	3¢	24— .86	9- 6-33
	25— .90	4¢	26— .94	9- 6-33
	27— .97	3¢	29— 1.04	9- 6-33
	30— 1.08	4¢	31— 1.12	9- 6-33
			32— 1.15	9- 6-33
Elwood (fob ship)	33— 1.03	3¢	37— 1.15	9- 6-33
Torrance	14— .65	1¢	15— .66	9- 6-33
	16— .69	3¢	20— .81	9- 6-33
	21— .83	3¢	26— .98	9- 6-33

*All gravities—flat rate.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Richfield	15—$ .65	2¢	16—$ .67	9- 6-33
	17— .70	4¢	20— .82	9- 6-33
	21— .85	4¢	23— .89	9- 6-33
	23— .93	4¢	24— .97	9- 6-33
	25— 1.00	4¢	27— 1.08	9- 6-33
	28— 1.11	4¢	29— 1.15	9- 6-33
Whittier-LaHabra	15— .65	3¢	18— .74	9- 6-33
	19— .78	3¢	24— .93	9- 6-33
Montebello	19— .65	1¢	20— .66	9- 6-33
	21— .69	3¢	22— .72	9- 6-33
	23— .76	4¢	24— .80	9- 6-33
	25— .85	4¢	26— .89	9- 6-33
Coyote Hills	16— .65	3¢	19— .74	9- 6-33
	20— .78	3¢	29— 1.05	9- 6-33
	30— 1.09	3¢	34— 1.21	9- 6-33
Santa Fe Springs	21— .72	4¢	22— .76	9- 6-33
	23— .79	4¢	25— .87	9- 6-33
	26— .90	4¢	28— .98	9- 6-33
	29— 1.01	4¢	30— 1.05	9- 6-33
	31— 1.08	4¢	33— 1.16	9- 6-33
	34— 1.19	4¢	35— 1.23	9- 6-33
	36— 1.26	4¢	38— 1.34	9- 6-33
New Hall, McKittrick, Kern River	14— .57		19— .57	9- 6-33
Midway-Sunset, Elk Hills, Buena Vista Hills	17— .57	4¢	18— .61	9- 6-33
	19— .64	3¢	22— .73	9- 6-33
	23— .77	4¢	33— 1.17	9- 6-33
Lost Hills	17— .57	4¢	21— .73	9- 6-33
	22— .76	3¢	30— 1.00	9- 6-33
Coalinga	17— .57	1¢	19— .58	9- 6-33
	19— .62	3¢	21— .68	9- 6-33
	22— .72	3¢	25— .81	9- 6-33
Wheeler Ridge	17— .57	1¢	18— .58	9- 6-33
	19— .61	3¢	25— .79	9- 6-33
Kettleman Hills	33— .93	3¢	39— 1.11	9- 3-33
Pennsylvania				
Bradford	*2.35			2- 4-35
Sw Pa. Pipe Line	*2.02			2- 4-35
Eureka Pipe Line	*1.97			2- 4-35
Buckeye Pipe Line	*1.87			2- 4-35
Corning Grade	*1.32			10- 2-33
Michigan				
Central Michigan	*1.20			9-30-33
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

*All gravities—flat rate.

Summary of Wells Completed in the United States

Week Ending April 20, 1935

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1935	Total Completions this date 1934
Alabama	...	...	...	...	.....	3	1
Arkansas	3	1	...	2	25	55	22
California	17	15	...	2	3,790	219	106
Colorado	...	...	...	...	.....	3	5
Illinois	...	...	...	...	.....	8	3
Indiana	...	...	...	...	.....	48	46
Kansas	26	19	1	6	11,390	408	259
Kentucky	...	...	...	...	.....	40	28
Louisiana	11	9	...	2	4,560	231	221
Michigan	10	2	3	5	350	105	124
Mississippi	...	...	...	...	.....	7	10
Montana	4	4	...	...	220	21	33
New Mexico	3	2	...	1	2,720	80	32
New York	...	...	...	...	.....	...	3
Ohio	26	7	8	11	30	428	261
Oklahoma	47	27	2	18	76,615	648	591
Pennsylvania	3	...	2	1	.....	50	115
Texas	243	175	3	65	595,640	3,489	2,796
Utah	...	...	...	...	.....	...	3
West Virginia	11	1	7	3	15	149	155
Wyoming	...	...	...	...	.....	12	8
Totals this week	404	262	26	116	695,355	6,005	4,828
Totals last week	466	296	53	96	864,180	...	...
Totals this year	6,005	3,948	544	1,492	11,832,270	...	...

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
March 5, 1933	.....	.....	Cut 24.
May 2, 1933	.....	Cut 19.	.....
May 9, 1933	Cut 20.	.....	.....
May 22, 1933	Up 10.	.....	.....
June 19, 1933	Up 10.	Up 19.	.....
June 26, 1933	Up 10.	.....	Up 9-12
July 6, 1933	Up 13.	Up 10.	.....
July 17, 1933	Up 15.	.....	.....
July 28, 1933	Up 15.	.....	.....
August 11, 1933	Up 10.	.....	.....
August 24, 1933	.....	Up 10.	.....
August 30, 1933	Up 15.	.....	.....
September 6, 1933	Up 10.	Up 10.	Up 15.
September 8, 1933	.....	Up 15.	.....
May 1, 1934	Up 10.	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25.	.....	.....
January 4, 1935	Up 15.	.....	.....
February 4, 1935	Up 15.	.....	.....

CRUDE PRODUCTION TAXES

Oklahoma—Three percent of gross value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Three percent of gross value at well and ⅛-cent per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

KEROTEST

LABORATORY TESTED
....FIELD PROVEN....
THE MEASURE OF
KEROTEST
DEPENDABILITY

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MEN IN THE INDUSTRY'S NEWS

(Continued from page 14)

THOMAS R. BRUNSON, engineer with the Interstate Commerce Commission, and formerly an oil operator in the Wichita Falls, Texas, district, was in Houston last week.

DR. G. J. NEUMANN, of Salt Dome Oil Corporation, Houston, was the speaker at the Houston Geological Society's weekly meeting April 25. He discussed "German Oil Geology and Geophysics," comparing the geology and geophysics of the salt dome area of northern Germany with that of the Gulf Coastal area of Texas and Louisiana.

JAMES A. MOFFETT, formerly in executive positions in the Standard Oil Company (New Jersey) and the Standard Oil Company of California, and more recently Federal Housing Administrator, recently stated he thought President Roosevelt would agree to his resignation within a short time. He explained to the President that the government housing program was getting well under way, and indicated he wished to be relieved soon, as he desires to make a trip to the Orient.

ALEX BRADFORD, known in oil circles in Texas for several years ,and recently in government work in Tennessee, is in California looking into a venture that will get him back into at least one branch of the oil business.

DIED:

CLYDE M. BENNETT, vice president and assistant manager of production for Magnolia Petroleum Company, died at Dallas April 25. He had been in bad health for the past year. Funeral services were held in Dallas, with burial at Shreveport, where he had resided for a number of years.

Mr. Bennett became an official of Magnolia Petroleum Company in December, 1931, as the result of the consolidation of the southwestern operating units of the Magnolia Petroleum Company and Vacuum Oil Company, following the merger of Standard Oil Company of New York and the latter. Prior to the merger, he was manager of the crude oil department of Vacuum Oil Company, with offices at Houston and New York.

Mr. Bennett was a native of Walkersville, West Virginia, and graduated from the University of West Virginia in 1909. His first experience was with the Philadelphia Company at Pittsburgh in 1909, when he joined the land and geological department. He continued with that company in the engineering and geological departments until October, 1913. During those four years he did work in West Virginia, Pennsylvania, Ohio, Kentucky, Wyoming and California. He was employed by the Benedum-Trees interests from 1913 to 1915. He became an employe of Arkansas Natural Gas Company in 1915 while a resident of Shreveport, and in 1919 became vice president of Louisiana Oil Refining Corporation. In 1926 he was elected president of Trinidad Oil Fields Operating Company, later taking charge of the company's field activities in Trinidad. He returned to the United States September, 1928, to become an official of Vacuum Oil Company, which had launched an aggressive program to develop its own crude supplies in the southwest.

Mr. Bennett was 53 years old, and is survived by a wife and four children. He was a member of the American Institute of Mining and Metallurgical Engineers, and the American Association of Petroleum Geologists. He was a member of and counsellor for the American Petroleum Institute. In 1930 he was on the engineering lectureship roster of Princeton University. He was a member of York Rite and Scottish Rite Masonic bodies, including the shrine.

UNDERWOOD NAZRO, executive vice president, Gulf Production Company, Houston, died at his home April 21, 1935, after several months of illness. He has been a prominent figure in the oil industry for many years, starting his career in the old Spindle Top field of Jefferson County. After successfully completing the second well in the Spindle Top field, he and associates acquired National Oil and Pipe Line Company and from this Unity Oil Company was formed. He also helped engineer a pipe line from the Spindle Top field to Port Arthur. After success with Unity Oil Company, which is still operating in the Spindle Top, he became vice president and general manager of Gulf Production Company in 1912. Later he was appointed executive vice president, which position he held until his death. He also was head of Gulf Refining Company, Mexican Gulf Oil Company, Gulf Pipe Line Company and Gulf Refining Company of Louisiana. Underwood Nazro moved to Houston in 1916, when Gulf Production Company moved its offices from Beaumont to Houston, and since that time he has been active in a number of civic organizations.

Oklahoma-Nebraska Gasoline Line Construction Progressing

ONE of the few major pipe line construction jobs in the Mid-Continent area during the past year got under way March 25, when Cimarron Valley Pipe Line Company, wholly owned subsidiary of Champlin Refining Company, started construction on a 260-mile 6⅝-inch welded line from Enid, Oklahoma, to Superior, Nebraska. In the absence of confirming data by the owners, it is estimated the line will have a daily capacity of approximately 20,000 barrels and will cost in excess of $1,500,000. When completed it will be the third gasoline transportation system running from Oklahoma and the Texas Panhandle northward into the marketing centers of the great Middle-West consuming territory.

Twenty-nine days after construction was commenced the line was more than 50 percent completed despite the handicap of severe dust storms, high winds and occasional rains. On April 23 status of the construction work was as follows: all of the right-of-way clearance completed, and 160 miles of welding, 160 miles of ditching, 105 miles of backfilling and 120 miles of field coating completed. The line is scheduled to be ready for testing on May 15, twenty-two days subsequent to the date upon which the above check of operations was made. Six and five eighths-inch, 14-pound seamless steel pipe with joints averaging 37½ feet in length is being used. On April 23 the final pipe order had been shipped from an eastern mill and the work was expected to be completed on schedule since better weather was due. Butt type electrically welded joints are being made.

Route of Line

The line passes northward out of Enid along the township line between ranges six and seven west in Oklahoma, through Bluff City in southeastern Harper County, Kansas, and skirts the eastern suburbs of Hutchinson in northeastern Reno County. From that point its course is directly north to the Kansas-Nebraska line where it swings westward to Superior in southwestern Nuckolls County, Nebraska.

Three major streams are crossed, the Salt Fork near Pond Creek, Oklahoma, the Arkansas near Hutchinson, Kansas, and the Republican near the Kansas-Nebraska line. No bridges are used, the line being submerged at all stream crossings. Since the terrain traversed by the right-of-way is devoid of any unusually difficult topography it was possible to locate the line on an almost due north-south course and no unusual problems are being encountered. In general the soil conditions are better than average for the Mid-Continent area but the owners are taking the precaution of protecting the pipe from end to end with two or more coats of bituminous enamel. These are in addition to protective material placed on the pipe at the factory. No technical study of soil or electrolytic conditions was made.

Four complete crews are involved in the construction work. One started at Enid, working northward, one northward and one southward from Hutchinson, and one southward out of Superior. Although slightly more than half of the allotted time had transpired in the completion of about 50 percent of the line, the most difficult portions were out of the way and progress is expected to be considerably more rapid during the next three weeks. A pump station at Hutchinson, Kansas, approximately at the middle of the distance, is to be the only intermediate station for the present. A bulk station is also to be built at that point and gates are being placed at points where future tie-ins may be desirable. Truman Smith Company has the contract from Hutchin-

This ditch is not as deep as it looks. Note scraper which trails behind the ditcher and smooths the bottom and corners between the walls and bottom.

This crew, using three and four pots, has coated as much as 10,000 feet of line in one day. High winds have made the work unusually disagreeable during much of the time. No coating is done during even the slightest downfall of moisture due to the possibility of bubbling the coat and making it pervious.

son to Superior and the B. & M. Company from Enid to Hutchinson. H. C. Price of Bartlesville, Oklahoma, has the welding contract.

Champlin Refining Company has a 16,000-barrel complete refinery at Enid but is said to be processing only about 7000 barrels per day at present. Considerable interest is being manifested in possible sources for material to keep the line near its capacity. It is understood that Champlin at one time refused the offer to participate in ownership of the Great Lakes Pipe Line system and some of those interested in the present venture think it may be based on a cooperative agreement between several of the larger independent refiners. The line passes near the plant of Eason Oil Company at Enid, of Globe Oil & Refining Company and Dickey Refining Company at McPherson and several smaller plants. The northern terminus of the line is served by the Santa Fe, Chicago and Northwestern, C.B.&Q., and Missouri Pacific railroads. Tank trucks will be used to contact points farther north in the consuming areas of Nebraska and adjoining states.

Michigan Gas Line Hearings May 1

Mt. Pleasant, Mich. — The Michigan Public Utilities Commission has set May 1 as the date for a hearing on Consumers Power Company's application for a permit to extend its Saginaw-Mt. Pleasant gas main from the Broomfield-Sherman gas area west 30 miles into Mecosta and Montcalm Counties.

On the same date a second hearing will be given the Petroleum Transportation Company's application for a common purchaser permit in the Millbrook-Hinton-Belvidire-Home township gas area. The Transportation Company has announced plans to construct a $200,000 gathering system in the gas area if the common purchaser permit is granted. This company will in turn sell to Consumers Power, now servicing Saginaw, Bay City, Midland and other cities with natural gas from the Broomfield-Sherman district of Isabella County.

Second Pipe Line Serves Montcalm County Area

Mt. Pleasant, Mich.—A second oil pipe line was put in service this week to the Leonard-Durbin wildcat well in Crystal township of Montcalm County. The well, placed on production March 29, had flowed approximately 90,000 barrels of oil up to April 21. It is being produced about 3000-3500 barrels daily against 350 pounds back pressure.

Simrall Pipe Line Company completed its four-inch main from the well to railroad loading racks two weeks ago with Pure Transportation Company completing a six-inch line this week.

Work on Sligo Gas Line Gets Underway

Shreveport, La.—Construction of Arkansas-Louisiana Gas Company's 10-inch electrically welded line from the Sligo gas field, Bossier Parish, to Princeton, in the same parish, to hook into the company's Monroe-Shreveport 20-inch gas trunk line will begin Monday, April 29, company officials said last week. The distance is about nine miles. Announcement was made previously that the line was contemplated.

Storing Gas in Old Chaney Field

Ranger, Texas.—Lone Star Gas Company is conducting an experimental natural gas storage test in the old Chaney gas field, located about eight miles southeast of Ranger, Eastland County. Approximately 750,000 cubic feet of gas is being boosted into eight intake wells originally completed in the 3100-foot sand, using the facilities of its Chaney station compressors with gas taken from the two trunk lines served by this station. Rock pressure of the field had declined to about 150 pounds, and about 300 pounds pressure is used in pumping gas into the sand.

Tulsa A. P. I. Chapter Plan Progresses

Tulsa.—Formation of a Tulsa chapter of the production division of the American Petroleum Institute seemed assured last week when a planning committee met with heads of the various technical societies of Tulsa. Complete indorsement and pledges of cooperation were obtained from the presidents and chairmen of the technical societies and it was believed that a more permanent organization would be set up on Monday evening, April 29, when another general meeting will be held.

Paraffin Production Problems

(*Continued fro mpage* 18)

In wells where the oil is produced by plunger pumps, the oil often contains gas in solution when it enters the lower end of the tubing. As the oil approaches the surface the pressure is reduced and sufficient gas may be liberated from solution to cause a part or all the oil to flow from the tubing. This is commonly referred to as "agitating." Under these conditions the tubing is periodically emptied leaving only a film of oil on the surface until a fresh supply of oil either flows or is pumped into the tubing. Rapid accumulation of paraffin usually is the result.

In the East Texas field the accumulation of paraffin causes trouble in five types of wells. The first type is the well tubed with two- or 2½-inch tubing but operated at very slow rates of flow, such as five barrels or less per hour. Under these conditions the radiation of heat to the surrounding formations and utilization of the thermal energy of the oil by the gas in expanding and lifting the oil, is sufficient to cool the oil below the saturation temperature of the oil and wax solution while it is still 1000 to 1400 feet from the surface. The temperature of the pipe in the upper part of the flow string, under these conditions, is appreciably below the saturation temperature and coupled with the low velocity of the oil, results in the precipitation and accumulation of paraffin. Operation of the wells at higher rates of flow causes higher temperatures to prevail in the flow string and accumulation of paraffin is prevented. The temperature of the flow string in an average East Texas well at different rates of flow is illustrated by the curves in Figure 3. Where it is impractical to operate the wells at sufficiently high rates of flow to prevent the accumulation of paraffin it must be removed by some mechanical, chemical, or heating process.

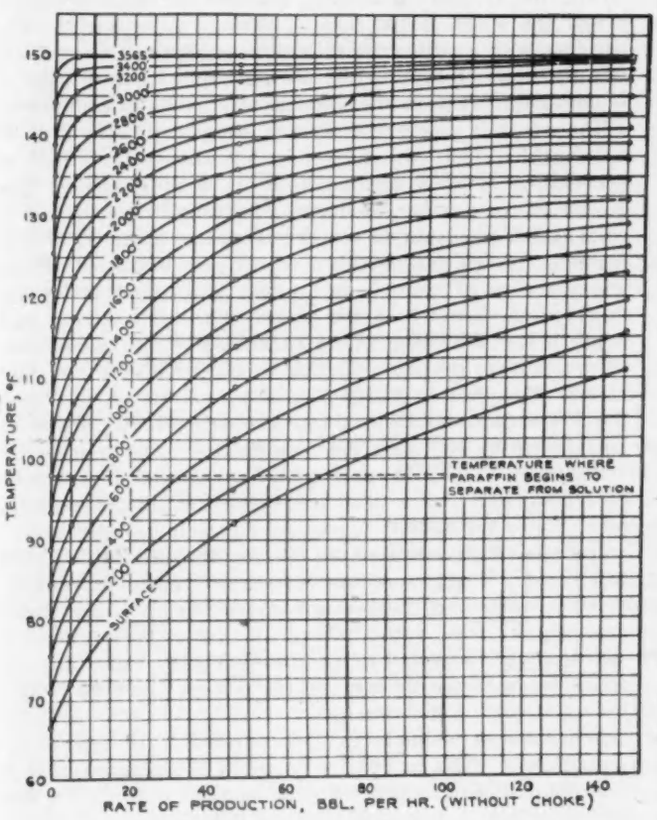

FIGURE 3
Temperature in 2½-inch tubing of an average East Texas well.

The second type of well is the one equipped with tapered tubing. The use of tapered tubing results in the consumption of more energy in flowing the oil and gas from the well. The use of small size tubing, i.e., one half-inch or three quarters-inch, as the first or lowest section of the flow string also restricts the quantity of oil that can be produced. As a result, radiation of heat to the surrounding formations and consumption of the thermal energy of the oil as the gas expands and does work in lifting the oil is sufficient to cause the oil to be cooled below the saturation temperature of the oil wax solution. The same conditions also prevail as discussed in the case of wells tubed with two- or 2½-inch tubing and operated at low rates of flow. In addition to these conditions the pressure is often reduced sufficiently in the upper part of a tapered flow string so that the ratio of gas to oil is such that the mist and sleeve form of flow prevails.[5] The accumulation of paraffin in wells equipped with tapered tubing becomes more pronounced as the reservoir pressure decreases.

The third type of well where pronounced paraffin trouble is encountered is the one equipped with small bottom-hole chokes. The resulting conditions in the flow string as far as temperature and precipitation of paraffin is concerned, are similar to those encountered with tapered tubing.

The fourth type of well is the very tight sand well where wide open flow of the well is small. A low flowing pressure at the bottom of the tubing is characteristic of wells of this type. In wells of this classification the same conditions prevail in the flow string as are found in wells equipped with tapered tubing or small bottom-hole chokes.

The fifth type of well is the pumping well where "agitation" occurs. The accumulation of paraffin in this type of well has already been discussed.

While East Texas wells have been used as definite examples in the foregoing discussion, it is these same types of wells in other fields producing oil containing a high percent of wax that cause paraffin troubles.

Methods for Preventing and Removing Paraffin Accumulations

The prevention of paraffin accumulation may be resolved into two methods of attack; either keeping the wax in solution in the oil, or by elimination of the conditions that favor the accumulation of paraffin once it is precipitated from solution. In order to keep the wax in solution it is necessary to produce the oil at a sufficient rate of flow so that radiation of heat to the surrounding formations will not be great enough to cool the oil below the saturation temperature of the oil-wax solution. Wells equipped with 2½-inch tubing in the East Texas field must be produced at rates of from 60 to 70 barrels per hour to prevent cooling of the oil to a temperature at which paraffin starts to separate from solution. However, rates of from 30 to 40 barrels per hour usually are sufficient to prevent any appreciable quantity of paraffin from being precipitated from the oil and accumulating in the oil string.

In fields where free gas enters the well with the oil, high gas-oil ratios increase the evaporation and cooling of the oil, and increase the precipitation of paraffin. Proper con-

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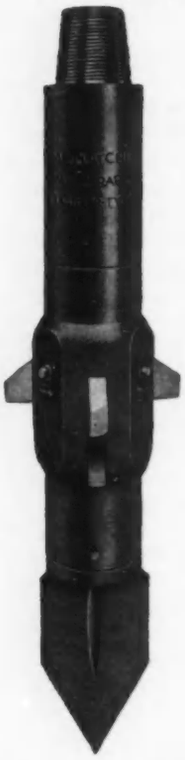

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trol of gas-oil ratios will help to prevent paraffin deposition.

While paraffin may be deposited on the walls of the pipe, particularly if it is much cooler than the saturation temperature of the oil-wax solution, the accumulation is more rapid when the surface is either periodically coated with oil or when the sleeve and mist form of flow prevails. The selection of the proper size tubing and regulation of the surface pressure often will prevent heading with long periods between flow. Reduction of the gas-oil ratio may either change the form of flow from the sleeve and mist to foam form of flow[5] or increase the thickness of the film of oil on the walls of the flow string if the sleeve and mist form of flow still prevails. These changes will reduce the rate of paraffin accumulation.

In pumping wells where agitation occurs with the resulting condition of rapid accumulation of paraffin, it is necessary to prevent the oil from flowing from the oil string in this manner if paraffin accumulation is to be prevented. This can best be accomplished by applying a back-pressure at the surface which prevents the gas from being liberated from solution in the oil in sufficient quantity to cause agitation. The proper use of gas anchors will also prevent certain types of pumping wells from agitating.[1]

There have been a number of chemicals presented to the industry for the purpose of preventing the accumulation of paraffin. However, their effectiveness is questionable. While it is quite possible that certain substances will either inhibit the crystallization of wax or prevent it from becoming attached to the walls of the flow string, the cost of the chemical plus the operating cost of introducing it into the well, in most cases, make this method of combating the problem impractical.

Deposition of paraffin can be prevented by heating the oil as it flows from the well either by introducing steam through coils placed in the annular space outside the flow string, or by placing electric heaters on the flow string below the point where paraffin accumulation begins. Experience with a number of different installations using these two methods of heating the oil has proved that usually it is cheaper to remove the paraffin after it has accumulated.

The use of a mechanical scraper, commonly referred to as a "chuckler," has proved to be an effective method of preventing paraffin accumulation in flowing wells. This device has a number of forms but usually consists of a steel rod of from one to two feet long and about ½ inch in diameter to which a number of wings are welded. These wings are small enough to produce a loose fit inside the flow string. Cross bars are placed in the flow string at a depth below the point where paraffin starts to accumulate to prevent the tool from falling to the bottom of the flow string. The tool is placed in a short lubricator on top of the flow string and dropped into the well when it is shut in. In falling, the tool cuts the accumulated paraffin from the walls of the pipe. When the well is opened the velocity of the oil lifts the tool to the surface again cleaning the pipe. Once the tool is placed in the well its operation is automatic. It is advisable to cushion the lubricator at the top of the lift with a rubber curtain or stop to prevent excessive wear and to prevent expulsion of the scraper through the top of the tubing. If the well has been in operation for a period of time sufficient to cause any appreciable deposition of paraffin the tubing should be cleaned before installing the chuckler.

Whenever it is impractical or impossible to control the operation of wells in order to prevent the accumulation of paraffin it becomes necessary to remove it from the flow string before it completely closes the pipe.

In the last few years the use of small single-strand wire lines has become common practice for running instruments into wells for determining sub-surface pressures and tem-

peratures. These lines have proved so satisfactory for this work that it is quite natural and their use should be extended to running small strings of tools into the wells for removing paraffin. This method has proved very economical and satisfactory.

The wire line usually employed is a soft plow steel wire approximately 0.065 inches in diameter. This wire has sufficient strength safely to withstand a pull of from 500 to 600 pounds. Wire made from special steels, slightly larger in diameter and capable of handling loads of from 800 to 1000 pounds also are used. The tools usually consist of a small stem, jars and cutter, and weigh from 25 to 50 pounds. Experience has shown that the link type of jar has less tendency to plug with paraffin than the plunger type and is to be preferred. Power for operating the tools usually is obtained from a passenger automobile, either by means of a belt driven from a pulley attached to the rear wheel, or by means of a special power take-off.

If the wells are cleaned regularly and before too great a quantity of paraffin has been deposited, very little time is required to clean the wells and two men usually can clean four to five wells per day with this type of equipment.

It is advisable to use portable winches equipped with heavier stranded lines similar to those used for swabbing and pulling tubing, whenever the flow string is practically closed with a hard deposit of paraffin. After the hard deposit of paraffin has been removed the lighter equipment can be used at more frequent intervals to keep the well free from paraffin.

In pumping wells where rods and plunger pumps are used, the most practical method of removing paraffin, if deposition cannot be prevented, is to pull the rods. The paraffin attached to the rods should be removed as they are pulled from the well. After pulling the rods the best practice is to run a scraper or paraffin-hook into the tubing and remove the paraffin that has not been removed by the rods and pump as they were withdrawn from the well. These tools can be run into the well on the rods or on a wire line. It is advisable to remove all the accumulated paraffin from the tubing before running the pump and rods back into the well, as it greatly prolongs the period of time that the well can be operated before it is again necessary to pull the rods.

The use of chemicals, either for dissolving the deposited paraffin or for melting it with heat resulting from a chemical reaction, has not proved satisfactory for use in casing or tubing.

Accumulation of Paraffin in Flow Lines

The accumulation of paraffin in flow lines is seldom a serious problem in the more temperate climates. However, in regions where low atmospheric temperatures prevail for long periods of time, paraffin often accumulates, and in some instances the entire body of the oil congeals and becomes so viscous that it is impossible to flow the oil. The manner in which the oil flows through the lines will also affect the deposition of paraffin. Wells producing by heads, or having high gas-oil ratios may cause the deposition of paraffin much in the same manner as occurs in the flow string.

In cases where a moderate climate prevails and the deposition of paraffin is relatively slow, it is advisable to design the flow lines so that small pipe line scrapers or "go-devils" can be run through the lines to clean them. If the accumulation of paraffin is rapid or in cold climates it is often necessary to heat the lines. This can be accomplished by heating the lines with small gas-fired heaters placed near the well or by laying a parallel steam line and jacketing both lines. The injection of steam directly into the line is not advisable except for cleaning purposes. Injection of steam directly into the line while the oil is flowing through it will result in the formation of an emulsion that is very stable and difficult to treat.

Paraffin Accumulation in Tank Batteries

The accumulation of paraffin in tanks can seldom be prevented completely when handling oils that contain any appreciable quantity of wax. Careful operation practice, however, will often modify the problem. The temperature of the oil and evaporation of the more volatile constituents are the factors causing accumulation of paraffin in tanks, although the former is by far the more important. Oil standing in tanks will gradualy approach the atmospheric temperature, regardless of its temperature on leaving the well. If the oil is cooler on leaving the well than the saturation temperature of the oil-wax solution, it will contain precipitated wax as it enters the tanks. If the atmospheric temperature is colder than that of the oil, additional wax will separate from solution as the oil cools on standing. If the atmospheric temperature is higher, some of the precipitated wax in the oil may be redissolved as the oil is warmed on standing. However, a part of the precipitated wax will settle to the bottom of the tank before it can be redissolved.

There is a marked tendency for wax crystals to coagulate into larger grains if the oil is in motion. The wax from the oil while flowing from the well and through the flow line forms much larger particles than the crystals that develop in the oil while standing in the tank. These larger particles settle more rapidly from the oil.

In order to modify the accumulation of paraffin it is advisable to operate the wells in a manner that will result in a higher temperature of the oil. If the atmospheric temperature is below the crystallization temperature of the wax it is advisable to run the oil from the tanks as quickly as possible, thereby reducing the time available for the precipitated wax to settle from the tanks and also preventing further precipitation of the wax by further cooling of the oil.

The use of flow line heaters is sometimes advisable where large quantities of wax accumulate in the tanks. Steam heating coils can be placed in the tanks for heating the oil and redissolving the wax. Proper heating will often redissolve the wax and at the same time cause it to remain in solution or if it does precipitate from the oil the wax crystals will be so small that they will settle from the oil very slowly.

Conclusion

In combating paraffin problems the operator should make a careful study of the situation to determine first, what practical and economical modifications can be made in the production practice to prevent the separation of paraffin from the oil and its deposition in the flow string, flow lines, and tank batteries; and second, what methods should be employed to handle or remove the paraffin that may accumulate after the proper steps have been taken to prevent its deposition or accumulation. In most cases a proper balance between good production practice for prevention and the application of effective methods of removing the paraffin, will result in very low costs for handling this problem which is inevitably encountered in the production of certain types of crude oil.

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Texas Crude "Nominations" Approximate Federal Quota

Austin, Texas.—Several small increases for Texas oil fields were requested by operators at the monthly proration hearing before the Texas Railroad Commission here Friday. The commission, if it is to meet the recommendation of the Department of the Interior and allow the production of no more than 1,032,900 barrels, needed to cut 18,000 barrels from the allowable on May 1. Nominations filed by purchasers of Texas crude indicated that the local demand would be 1,038,233 barrels, only 5333 barrels above the federal allocation. As Chief Petroleum Engineer Gordon Griffin recommended that no cut be made in East Texas, the commission will need to find other fields where the reduction can be made if this recommendation is followed.

Commissioner Ernest O. Thompson announced that he had received a report from Assistant Attorney General Merton Harris stating that all but one of the East Texas refineries operating with untendered oil had been closed down on April 25. Several were reported to be closed down permanently, and most of the others were so tied up with injunctions that there was no prospect of them reopening in the immediate future.

One thousand and thirty cases have been filed by commission agents charging transportation of untendered oil by truck, Thompson said. He pointed out that with the bill enacted which is now before the legislature, prosecution of these violators would be greatly simplified. They could be prosecuted for misdemeanors, rather than through the slower civil action.

C. P. McGaha of Wichita Falls filed a request with the commission for an additional 1500-barrel allowable for the North Texas district which he declared was essential to care for new completions. The current allowable there is 58,500 barrels while May nominations totaled only 54,000 barrels.

A cut in the Panhandle allowable was urged by Hines Baker of Humble Oil & Refining Company, who stated that his company is purchasing daily 3000 barrels more oil than it desires. May nominations for that area were approximately 9000 barrels below the current allowable of 61,000 barrels per day.

A pressure decline in the East Texas field of three pounds, or two tenths pounds per million barrels produced, was reported by Gordon Griffin, chief petroleum engineer for the commission. He expressed the opinion that the present rate of flow was an efficient method of operation and recommended to the commission that the allowable remain unchanged during May. Griffin made the same recommendation for the Van field, where the commission has recently completed its first survey. This survey indicated that while conditions were excellent over most of the field, the area in which there are 105 pumping wells is in need of adjustment. Griffin believes that if the allowable remains the same for one or two months, that the pressures will have an opportunity to adjust themselves to the slower rate of flow ordered on April 1, and that the effect of that change can be measured accurately. Data gathered indicated that the field might be flowed at the rate of 20,000 to 50,000 barrels per day without physical waste, Griffin said.

John Hancock of Texas Pacific Coal & Oil Company urged the commission to create a new designation for the Hurdle area of the McCamey field, with a separate allowable of 2000 barrels daily. Wells in the area are now allotted a total of 974 barrels per day, he said.

A reduction in the allowable for the Furhman pool, Andrews County, was urged by Ed Landreth. He stated that the present allowable amounted to 31.5 percent of the potential. The adjacent Means pool with an allowable of only five percent of its potential should be increased, Landreth stated.

Operators in the Yates field asked for an increase which would permit them to produce with a more efficient gas-oil ratio, and thus reduce waste in that field.

An increase of 1000 barrels daily to be allocated to new wells was requested for the Sayre field.

The Texas Company asked for an increase of 2000 barrels a day in the Manvel allowable. General Jacob F. Wolters told the commission that this oil was nowhere else available to the company and that it is needed to establish proper stocks for the new refinery unit being built at Port Arthur.

A protest was received from operators in the North Government Wells field against the present proration scheme based on bottom-hole pressures. They contended that although the allowable has been cut 50 percent during the past year, pressures have failed to equalize as anticipated, and consequently allocations made are disproportionate. They asked that an order based on per-well allowance be installed.

Judge Ben Powell, representing Conroe operators, protested that the cut ordered for that field on April 1 was larger than that ordered for other flush fields in the state. He urged that no further reduction be made at this time.

Tide Water Oil Company renewed its request for an increased allowable for the Cayuga field. At the hearing in April it asked an increase of 1000 barrels, but at the hearing Friday 1500 barrels was sought. Engineers stated that more efficient gas-oil ratios would be maintained at rates of flow higher than those now permitted.

Oklahoma May Allocation Highest Since 1933

Oklahoma City.—In an order issued Thursday afternoon, April 25, the Oklahoma Corporation Commission set May daily allowable for state pools at 500,200 barrels to conform to the federal allocation which is the highest granted the state since September, 1933. Class A pools were given 126,600 barrels daily; Class B pools, 144,900 barrels; Class C pools, 39,300 barrels; Class D pools, 7300 barrels; pools under voluntary proration, 26,100 barrels; and unprorated pools, 156,000 barrels. Numerous requests were made for increase in various flush pools. The Fitts pool of southeastern Pontotoc County, with a rapidly increasing potential as large wells are completed, was granted a 1000-barrel increase to make its allowable 13,000 barrels per day.

Panhandle Gas Bill Nearing Passage

Austin, Texas.—The Texas Senate last week began to labor slowly through the intricacies of the Small bill, designed to prevent the waste of gas in the Texas Panhandle.

Rewritten three times since it left the House, the bill now is in the form in which it will finally pass the Senate unless there is a radical change in opinion over the week-end.

As it now is being considered, the measure would apply to the Panhandle only, according to Senator Clint Small, author of the bill. He has withdrawn the definition of an oil well which would place wells producing distillate within the scope of the measure.

Senator T. J. Holbrook and Senator Sulak of LaGrange have both sought amendments to the bill which would insure the right to operate stripping plants at Refugio and Pledger. Votes defeating these amendments indicate that 18 senators are solidly behind the Small bill as drafted.

New Officers

(*Continued from page 10*)

W. V. Vietti, The Texas Company, Houston, vice chairman for the Gulf Coast.

Francis Heath, Sun Oil Company, Dallas, secretary-treasurer.

The following were elected to the advisory committee:

E. H. Blum, Atlantic Oil Producing Company, Dallas, chairman.

D. Collins, Shell Petroleum Corporation, Houston.

J. D. Collett, Collett & O'Keefe, Fort Worth.

M. G. Cheney, Anzac Oil Corporation, Coleman.

Chas. Fitzgerald, Sinclair Prairie Pipe Line Company, Fort Worth.

Chas. Gladden, Magnolia Petroleum Company, Dallas.

E. H. Griswold, Continental Oil Company, Fort Worth.

E. De Golyer, Felmont Corporation, Houston.

Rex Hamaker, Reed Roller Bit Company, Houston.

James Hutcheson, Rio Bravo Oil Company, Houston.

Blaine Johnston, Simms Oil Company, Dallas.

Roy B. Jones, Panhandle Refining Company, Wichita Falls.

E. A. Landreth, Landreth Production Company, Fort Worth.

A. M. McCorkle, Stanolind Oil & Gas Company, Fort Worth.

R. S. McFarland, Texas-Seaboard Oil Company, Dallas.

F. Ray McGrew, Standard Pipe Line Company, Shreveport.

R. H. Morrison, The California Company, Dallas.

John A. Ritter, Sun Oil Company, Dallas.

Chas. F. Roeser, Roeser & Pendleton Company, Fort Worth.

Arch H. Rowan, Rowan Drilling Company, Fort Worth.

Joe Russell, Gulf Production Company, Houston.

Ed. Salrin, Tide Water Oil Company, Houston.

F. C. Sealey, The Texas Company, Houston.

B. S. Sorelle, The Pure Oil Company, Fort Worth.

W. L. Todd, Columbia Oil & Gas Company, Dallas.

John R. Suman, Humble Oil & Refining Company, Houston.

C. E. Sutton, The Pure Oil Company, Houston.

Today's Oil Producing Methods Eliminate Waste

PORTER FLINT

RECENT changes in oil field drilling methods and use of greatly improved equipment, constituting modern scientific production, mark the advance of the oil industry as of the past six years; evolution forced on the oil industry to resist the great fighting powers of nature rather than by legislative enactments of mere man.

Oil men, drilling deeper and deeper into the earth in their search for much needed oil reserves, encountered tremendous high pressure gas and oil zones in the lower horizons which developed thousands of pounds of pressure to the square inch on existing equipment. How to hold this pressure in control—to guard against blowouts and possibility of resulting fires—was the problem presented to petroleum engineers. Practical experience and ingenuity found the answer in improved method and equipment.

As a result an interesting conservation angle develops as a sidelight. While Washington, by law enforcement, attempts to tell the oil industry how much or how little oil it may take out of the ground, it has remained for the experienced field men, in direct contact with existing conditions, to show the oil industry how it can keep the oil in the ground, under absolute control until ready to release it into the marts of commerce.

It is because of such evolution in oil production that Kettleman North Dome Association has hung up a record of having completed 44 commercial producers at Kettleman Hills North Dome without a single blowout or fire. This record has additional significance when it's taken into consideration that the first two wells completed at North Dome did not enjoy good fortune, and blew-in out of control.

Petroleum geologists and oil operators are divided into two schools of opinion; one claiming that it has been lack of experience in the handling of these high-pressure wells, and the other insisting that it has been lack of sufficiently heavy equipment, which brought about the former existing condition. Both factions have merit in their claims. It is generally conceded, however, that one of the most important factors in modern operation is the proper conditioning of rotary mud.

Long before the perfection of heavier equipment, hundreds of wells in California ran into difficulties with high-pressure zones. Los Angeles Basin oil men had their troubles in the early exploration history of Signal Hill, Santa Fe Springs, Huntington Beach, Seal Beach and other fields, and suffered frequent blow-outs for lack of modern equipment and because their wells were not properly handled; major and independent oil companies suffering equally from time to time and learning a valuable lesson only through bitter experience.

Hundreds of oil wells were drilled to completion in the Basin under adverse conditions, yet, luck was no small factor. For example, the discovery well at Santa Fe Springs was brought in with a 250-pound clip gate valve capable of withstanding small additional pressure according to the plan of its designers. For some unaccountable reason and most luckily this valve withstood a pressure of 2000 pounds to the square inch. On the other hand, today, we find one case where a valve designed to withstand 100,000 pounds pressure to the square inch, was installed where equipment of 3000 to 6000 pounds capacity would have given ample margin of safety. Interesting comparison of old and new!

The oil curtailment program has been given as another reason why oil field methods have been drastically changed since 1929. In order to bean a well down to meet the desired production quota, with full safety, heavier fittings and valves are needed. So we find christmas trees of gigantic sizes, elaborate systems of flow lines, fittings and other paraphernalia, all serving as a check to the flow of gas and oil to the surface and to keep absolute control at the surface. This is known as scientific production.

Such heavy equipment has been needed for the many deep tests drilled in California. In the San Joaquin Valley deep tests seldom if ever go less than 8000 feet. Because of extreme depths to which wells must go in search of production, especially at Kettleman Hills, North Belridge, and lately in the Ventura Avenue field, their thus being equipped, determines the difference between commercial profit and loss.

The Lillis & Welch wildcat well northwest of Kettleman Hills North Dome is exemplification. The tremen-

dous cost of heavy equipment used in the drilling of this deep test has run the figure up to more than one million dollars. Needless to state, much of the equipment used for this test was not available a few years ago.

Knowing the hazards of the high-pressure producing zone at Kettleman Hills, Ed McAdams, prominent driller, set about to guard against any emergency that might arise. He equipped this wildcat with a 136-foot derrick, 1,000,000 pounds capacity; five 200-horsepower boilers, a superheater which ran steam at 600 degrees using 1400 barrels of water per day for steam purposes to carry on drilling operations; a jack shaft, roller bearing drawworks, mammoth pumps, a traveling block and blowout preventor, capable of withstanding 6000 pounds pressure. A depth of nearly 11,000 feet was reached and the hole now is being reconditioned.

Had the Lillis & Welsh well found a high-pressure productive gas and oil zone there is little doubt in the minds of experienced petroleum engineers that it would have been brought in under perfect control and without danger of a blowout.

"Painting the Derrick Black" was a popular tune in the early exploration days of the oil industry. Wastage of oil and gas was the expected procedure. But it is only the prospectus of a stock promoter's lithographic play for the eastern sucker's cash that a gusher spraying oil all over the landscape has any place. To the honest oil man a well wasting oil and gas spells nothing but loss for him and his investors. Orderly development, conservation, safety and such factors are the order of the modern day. And in line with such policy Kettleman North Dome Association's 44 wells point the way.

In fact, it is extremely impractical for any oil man to waste the great national resource as of today. In addition to strenuous objections on the part of the Oil Administration are added the taxpayers' howls and civilian claims for damages done through polution of ocean beaches by wasteful tideland drilling or damage done a single orange, lemon or a bunch of grapes.

Such, however, is of the past. Oil producers have kept in step with the ever-changing progress of the era.

Austin, Texas.—Two bills intended to correct titles to oil properties in the Eastland area were killed last week by the House Committee on Oil, Gas and Mining.

The measures would affect royalties, causing title to revert to the owner of the surface rights.

The bills were killed at the request of Representative Davison of Eastland, who stated he had become convinced that no constitutional measure of this sort could be enacted.

Completed New East Texas Refinery

Gladewater, Texas.—Heath Refining Company, Gladewater, has completed and placed in operation a 2500-barrel capacity crude skimming plant situated in the Camps Switch section of the East Texas field and near the Texas Pacific Railroad. Construction work was originally started more than a year ago. The company was formed by Adair Heath and R. Beasley.

Polo Pool Apparently Extended North

Perry, Okla.—Attention was attracted to the Polo pool nine miles northwest of here in western Noble County during the week when Atlantic Oil Producing Company cored saturated Simpson dolomite and apparently found top of the Wilcox sand at Porter 1, SE NW SW 22-22n-2w, a half-mile north of production in the pool. Top of the dolomite was reported at 4927 feet and cored to 4930 feet. At this depth a saturated sand showed in the core and drilling was stopped at 4934½ feet. Six and five eights-inch casing was cemented at 4934 feet and the test is waiting on cement to set.

O. K. WING, secretary and treasurer of Phillips Petroleum Company at Bartlesville, died in a Tulsa hospital on Wednesday morning, April 24, from a complication of diseases from which he had suffered for several years. Wing was born at Homewood in Cooper County, Missouri, and was 42 years of age at the time of his death. He came to Oklahoma in 1916 with the Empire Companies but during the following year joined the Phillips organization as an accountant. He served in the army during the World War and returned to the organization when he was discharged in December, 1918. Through the 16 years after his return he served as assistant secretary and auditor, comptroller, secretary and treasurer and director. Six years ago he was elected a director of the First National Bank of Bartlesville. Funeral services were held from the First Presbyterian Church at Bartlesville on Friday afternoon.

Five Tribes Will Auction Leases May 7

Muskogee, Oklahoma.—The Five Civilized Tribes May 7 are offering at public auction oil and gas leases on 80 tracts comprising 6090.46 acres in McIntosh County. In addition there will be offered 122 tracts comprising 10,702.77 acres in 22 counties, a total of 202 tracts comprising 16,793.23 acres in 23 counties. Offerings by counties are to be as follows:

County	No. of Tracts	Acreage
Atoka	8	997.73
Choctaw	1	280.00
Coal	5	427.15
Craig	3	100.00
Garvin	32	2,897.57
Haskell	11	940.46
Hughes	17	1,318.56
Jefferson	2	175.00
Johnston	3	318.36
Latimer	5	640.00
LeFlore	3	195.15
Love	6	325.24
Marshall	1	80.00
McClain	1	50.00
McIntosh	80	6,090.46
Okfusgee	1	40.00
Okmulgee	2	80.00
Pittsburgh	1	200.00
Pontotoc	1	91.55
Pushmataha	5	676.00
Seminole	11	710.00
Stephens	2	120.00
Tulsa	1	40.00

Viola Lime Below 14,000 Feet at Binger

Binger, Okla.—It is reported that a geophysical company shooting across Denver Producing & Refining Company's Adah Noe 1, NW SW SW 34-10n-10w, now the deepest producer in the world, found Viola limestone to lie at approximately 14,000 feet beneath the surface. This would mean that Wilcox sand could not be penetrated at much less than 15,000 feet. The Adah Noe was drilled to 11,230 feet and is producing about 70 barrels per day from 10,500 feet with plunger lift.

Logan County Wildcat Revives

Navina, Okla.—Sinclair Prairie Oil Company's Koatsch 1, SW SW SW 23-15n-3w, wildcat test 4½ miles southeast of here in southwestern Logan County, was written off of the books about 10 days ago when it drilled the plugs and found considerable water in the upper Wilcox sand topped at 6218 feet and drilled to 6254 feet. It came back into the picture in a big way during the past week when the well made three flows and filled up 1700 feet in

30 minutes while exploring second Wilcox sand from 6323 to 6333 feet, the total depth with a tester. Since seven-inch casing had been cemented at 6102 feet it will be necessary to run 5 3/16-inch to shut off water from the upper sand. The test was shut down awaiting the arrival of casing but should be ready to test late next week. Nearest established production is in the Edmond pool eight miles to the southwest in northwestern Oklahoma County.

Wildcat Starting in Western Oklahoma Basin

Granton, Okla.—Indian Territory Illuminating Oil Company and Continental Oil Company were moving in material for Fairview 1, C SW SE 32-22n-14w, a wildcat test three miles northwest of here in western Major County. The test is said to be on a 6000-acre block which covers a structure worked by seismograph and partially cored. Leases were taken originally by Continental Oil Company and farmed in part to the Indian Territory Illuminating Oil Company. Wilcox sand is to be the objective. This area, known as the western Oklahoma Basin, is one of expectional interest and one about which but little is known geologically. Nearest production of consequence is in the Garber pool over 65 miles to the east.

Big Wells Feature Week in Fitts Pool

Ada, Okla.—Phillips Petroleum Company scored two big wells in less than a week's time in the Fitts pool southeast of here when Norris 5, NW SE SW 25-2n-6e, yielded 1126 barrels in one hour through the casing from Bromide horizon topped at 4035 feet, and five days later Norris 1, NE SE SW, an east offset, flowed 1080 barrels the first hour through the casing from Bromide topped at 4075 feet and drilled to 4255 feet. The latter was started in January of this year but suffered numerous strokes of hard luck. All operators are permitted to take short tests through the casing but must complete and produce through 2½-inch tubing.

Magnolia Petroleum Company's Shaffer 2, SW SE NW 25-2n-6e, in the same portion of the pool, topped Bromide at 4188 feet, found the first sand at 4278 feet and the second sand at 4353 feet and drilled to 4363 feet where it made 285 barrels the first hour and 315 barrels the second. On a subsequent 1½-hour gauge it made 519 barrels, all preliminary flows through the casing. This is the first Bromide sand well so far completed with cable tools in the field. W. A. Delaney et al's Smith 1, NE SE SE 26-2n-6e, almost a half-mile west of production and the only test in this section, topped Woodford shale at 3280 feet and was drilling below 3500 feet. Present indications are that the pool probably will swing farther to the southwest than was at first thought.

Two locations south of the established line of production, E. H. Moore et al set 2½-inch tubing at 4175 feet and were ready for potential gauge at Mitchell 1, NW SW NW 31-2n-7e, first producer from the McLish zone in the pool. This well has been a freak in that it ran low until at the point where Mayes lime should have been encountered. This formation and the four major underlying formations were missed when the well cut a fault or series of fault planes and Bromide horizon was encountered at about normal depth. On a four-hour test it did 1407 barrels in four hours from 4415 feet. Subsequent deepening to 4515 feet appears not to have helped.

New Work Continues at High Rate in Oklahoma

Tulsa.—Oklahoma operators continued to initiate work at a rapid rate when during the week they made 61 first reports compared to 69 during the preceding week. Twenty counties were represented in the current first reports as follows: Tulsa, nine; Seminole, eight; Pontotoc, seven; Osage and Pottawatomie, five each; Creek and Okmulgee, four each; Marshall and Oklahoma, three each; Carter and Wagoner, two each, and Comanche, Garfield, Garvin, Lincoln, Logan, Major, Muskogee, Noble and Okfuskee, one each. This record has been exceeded only once and equaled once during the year.

Of the 27 oil wells which reported 76,617 barrels initial production, five in

Oklahoma Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Evans & Grove, Eaves 1, nw sw se sw 28-1s-2w	*	700
Cox & Hamon Farm 1, se sw ne 17-2s-2w (pb 2162)	153	2257
Don Leon et al, Majors 1-A, se se sw se 22-2s-2w	28	1135
Schermerhorn Oil Co., Fee 34, ne sw sw sw 5-4s-3w	115	1075
Poland & Hudson, Sullivan 1, ne ne se 5-5s-1w (pb 4060)	*	4511
CREEK COUNTY—		
Doke & Hughes, Jones 8, se se nw nw 10-17n-8e	75	1404
JEFFERSON COUNTY—		
Roy Starr, Jack 1, sw se sw 3-4s-4w	*	283
KAY COUNTY—		
The Texas Co., Curtis 1, nw nw ne 23-28n-3e	*	3158
MARSHALL COUNTY—		
Headington, Snell 1, nw ne ne se 36-7s-5e	8	480
MURRAY COUNTY—		
Manahan Oil et al, Ward 1, ne se nw 18-1s-3e	*	2110
MUSKOGEE COUNTY—		
Paul, Fee 1-A, ne ne ne ne 26-15n-17e	*	2180
OKFUSKEE COUNTY—		
Prince & Anderson, Lekowski 1-A, ne se nw sw 23-11n-11e (otd 1660)	¶1	2075
OKLAHOMA COUNTY—		
Marathon Oil Co., Ball 2, nw sw ne 19-12n-1w	29	6149
Anderson-Kerr et al, Linn 1, sw sw nw 17-14n-2w	*	6373
Marathon Oil Co., Dahl 2, ne nw se 31-14n-3w	¶57-12,228	6682
OKMULGEE COUNTY—		
Hanson, Been 9, se nw ne ne 33-12n-12e	*	1534
Hendrick, Gilbray 2-A, cel se ne 27-13n-13e	*	1140
Vierson Oil & Gas Co., Washington 1, sw sw sw nw 17-14n-12e	*	2765
Logan, Farmer 1, ne ne sw nw 32-15n-13e	5	1315
Paraffine, Anthis 1, ne ne nw 26-16n-11e (otd 2415)	5	2865
Klingensmith, Farr 9, sw se se nw 35-16n-11e	12	2310
OSAGE COUNTY—		
Murry Ringold, 6, sw ne se ne 25-21n-8e	*	391
Barnsdall Oil Co., 26, ne nw sw ne 30-21n-9e	*	1158
Lewis & Continental Oil Co., 6, ne se se 9-24n-7e	650	2525
The Texas Co., Oliphant 5, ne sw se se 19-25n-8e	*	2500
PAWNEE COUNTY—		
Murry Ringold, Hughes 4, cwl e½ se 12-28n-7e (otd 2450 ft)	*	2710
PONTOTOC COUNTY—		
Magnolia Pet. Co., Norris 7 nw sw ne 25-2n-6e	2240	4370
Phillips Pet. Co., Norris 3, ne ne sw 25-2n-6e	14,424	4322
Stanolind O&G Co., Norris "E" 5, nw nw sw se 25-2n-6e	9576	4297
Carter Oil Co., Hardin 8, se se sw 30-2n-7e	7440	4092
Crosbie, Hardin 1, ne sw ne 30-2n-7e	15,024	4272
Stanolind O&G Co., Harden 9, se sw sw 30-2n-7e	6480	4140
Delaney et al, Fulsame 1, se se ne 35-4n-6e	lcn.	Abd.
POTTAWATOMIE COUNTY—		
Northern Oil Syndicate, Williams 1, ne ne nw 14-7n-4e (pb 4266 ft)	30	4286
Magnolia Pet. Co., Davis 3, nw ne ne 15-7n-4e (pb 4127 ft)	40	4153
Sinclair Prairie Oil Co., Davis "A" 1, se sw ne 18-7n-5e	*	4199
SEMINOLE COUNTY—		
Pure Oil Co., Harjo 4, se sw ne 11-7n-6e (otd 4361 ft)	50	4421
Winona Oil Co. et al, Meyers 4, nw sw ne 31-7n-8e	6132	4212
Barnsdall Oil Co., Harris 1, nw nw se 15-8n-5e	250	3994
Wood Oil Co., Henry 1, sw sw nw sw 28-9n-6e	1060	4122
Carter Oil Co., McKinnis 2, cw½ se sw 18-10n-6e	410	4596
STEPHENS COUNTY—		
Sykes, Franklin 8, sw ne se se 18-1s-8w	13	1880
Western Oil Co., Inc., Brown 2-B, cnl sw ne 30-1s-8w	*	2926
TULSA COUNTY—		
Owens, Burgess 1, nw nw sw sw 27-18n-14e	*	2125
Owens, Carvey 1, csw nw 27-18n-14e	¶½	1431
WAGONER COUNTY—		
Mars Oil Co., Island 4, sw se nw nw 14-17n-15e	70	1151
Dillard et al, Brow 1, ce½ ne sw sw 16-17n-15e	70	1935

*Failures; †Junked; ¶Million cu. ft. gas.

the Fitts pool of southeastern Pontotoc County were rated at 52,944 barrels calculated on a 24-hour basis from tests of shorter duration. The completion reports included two dry gas wells with combined initial volume of 1,500,000 cubic feet, one abandoned location and 17 dry holes, a total of 47 completions which involved 121,823 feet of drilling. Included in this figure were four old wells deepened a total of 1185 feet and two wildcat dry holes with 8483 feet of combined total depth. One wildcat location was abandoned.

New Oklahoma Law Ten-Acre Spacing

Oklahoma City.—Oklahoma's H. B. No. 187, became law during the week when it was signed by Governor E. W. Marland with the emergency clause attached. The new law provides that no well may be drilled on a tract of less than 10 acres except where 80 percent or more of the owners, owning 80 percent or more of the acreage agree to a different spacing. The Oklahoma Corporation Commission has restricted the drilling of wells to the 10-acre plan in the Fitts pool largely through the consent of the operators. Secretary Ickes' attempt to control drilling to 40-acre centers in the Crescent pool of Logan County, Oklahoma, was attacked by Eason Oil Company last year and when the government lost its case this operator and others revised their plans from the 40-acre to the 10-acre spacing. It is expected that the Oklahoma law will undergo some court tests.

Topeka Lime Yields First Time in Kansas

Russell, Kansas.—The feature news of the week from Kansas development was the finding of production in Topeka lime by Hartman and Blair at Rouback 1, SE SE NW 2-14s-15w, a semi-wildcat test in the Gorham area west of here in western Russell County. Top of the Topeka was encountered at 2780 feet, first oil at 2790 feet and the formation penetrated to 2795 feet, where started flowing a solid eight-inch stream but settled to heads. Since this is the first commercial production from this formation in the state the operators were unprepared for the flow to the extent that no tankage had been built and no master gate installed. In its present condition the well is estimated to be capable of making about 500 barrels per day. This find is expected to cause an increase in the development in an already very active county. Gypsy Oil Company owns the southeast diagonal offset.

Six Wildcat Tests For Western Kansas

Wichita, Kansas.—Six new wildcat tests were announced in western Kansas last week in a continuation of the play to the west. Many counties are reported to be leased solidly. Strikes in Russell County during the week created but little stir.

Bradley Brothers of Wichita have made a deal with Stanolind Oil & Gas Company to drill a test at Penney-Wann 1, NW SW SE 12-15s-20w, a wildcat test 12 miles southwest of Hays. A second exploratory test for Ellis County became known when Tom Palmer et al staked location for Ruder 1, SE NE NW 17-15s-18w, nine miles south of Hays. Both are located on what is known as the Yocemento anticline, a structural trend which has yielded one commercial pool.

Russell County was in the limelight through the strike of Hartman and Blair's Rouback 1, SE SE NW 2-14s-15w. The well was flowing by heads with tools and line gummed up in the hole as preparations were made to fish under difficult circumstances. Production is from Topeka lime at 2790 to 2795 feet, the first production of importance from this formation in the state.

April Weather Reduces Kansas Activity

Wichita Kansas.—New work in Kansas fell slightly below the average for the year when scouts made only 22 first reports. The effect of dust storms and lack of sufficient rainfall during April was reflected by a decrease of approximately 25 percent in new work. During the four weeks ending January 26 there were 104 first reports; the four weeks ending February 23, 116 first reports; the five weeks ending March 30, 151 first reports, and the week ending April 27, 85 first reports. Current first reports show Rice County in the lead with four; Cowley and McPherson Counties, had three each; Reno County, two, and Butler, Chase, Coffey, Ellsworth, Greenwood, Harvey, Russell, Sedgwick, Sumner and Woodson Counties, one each.

The week was successful from a completion standpoint when 19 new wells were rated at 11,390 barrels of oil and one gas well had 2,000,000 cubic feet. The reports also included two abandoned locations, one location with ponds abandoned and three dry holes, a total of 26 compared to 25 the preceding week. Two wildcat discovery wells yielded a combined initial of 1379 barrels. This development involved 61,727 feet of drilling including four feet in one old well and 5445 feet in the two wildcat discoveries.

Lincoln County Wildcat Cores Saturated Dolomite

Chandler, Okla.—Stanolind Oil & Gas Company's Campbell 1, SW SW NW 3-14n-3e, 1½ miles west of production in the West Chandler pool of western Lincoln County, topped Viola lime at 4982 feet, Simpson dense at 5030 feet and Simpson dolomite at 5040 feet. Coring from 5045 to 5064 feet operators recovered 17 feet of saturated dolomite, cemented seven-inch casing at 5003 feet and were waiting on cement to set.

Kansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BUTLER COUNTY—		
Sheldon & Wixon, Wilson Estate 1, ne nw ne 1-25s-3e (pb 2690)	182	2711
Hay & Cameron, Johnson 1, nw nw se 16-26s-6e	*	lcn
Blair, Blair 1, sw se sw 22-29s-6e (pb 2050)	¶2	2273
COWLEY COUNTY—		
Orr et al, Melick 1, cnw sw 13-34s-6e	*	170
ELLSWORTH COUNTY—		
Carter Oil Co. et al, Teubner 1, se se nw 26-17s-9w 1141		2178
GREENWOOD COUNTY—		
Ward McGinnis, Prather 1, nw nw nw 30-22s-10e	*	2570
York State, Demalmorie 16, cse nw 32-22s-11e	15	2045
Henderson & Holder, Harlan 6, cn½ sw nw 34-22n-11e	35	1954
McFann & Jones, Waymire 1-A, cs½ s½ nw 6-22s-12e	10	1879
RENO COUNTY—		
Barnsdall Oil Co., Sabin "C" 10, ne se se 11-23s-4w (pb 3505)	128	3617
Ledo Oil Co., Neufeldt 2, sw nw nw 12-23s-4w 1496		3621
Wilcox Oil & Gas Co., Neufeldt 3, se sw nw 12-23s-4w	*	lcn.
National Union Co., Ackley 3, ne ne se 14-23s-4w (pb 3380) ..¶10-114		3612
Olson Oil Co. & Shell Pet. Corp., Downie 10, se nw ne 14-23s-4w..lcn.		abn.
Sinclair Prairie Oil Co., Horner 3, se ne sw 14-23s-4w	224	3599
Olson Oil Co. & Shell Pet. Corp., Blake 7, ne ne sw 23-23s-4w....1029		3601
Olson Oil Co. & Shell Pet. Corp., se nw se 34-23s-4w 1813		3604
RICE COUNTY—		
Magnolia Pet. Co., Byer 2, sw sw nw 21-19s-9w	893	3246
Empire Oil & Refining Co., Tournear 1, nw se ne 29-19s-9w (otd 3214) 1551		3218
Gypsy Oil Co., Keesling 1, nw nw sw 10-20s-9w (pb 3265)	238	3267
Vickers Pet. Co., Specht 2, ne se ne 20-20s-10w	497	3339
Phillips Pet. Co., Mezger 5, ne sw ne 21-20s-10w	316	3367
RUSSELL COUNTY—		
Aylward Oil Co., Mills 3, sw sw ne 4-14s-15w	949	3085
Phillips Pet. Co., Boxberger 1, nw sw nw 24-14s-15w	269	3237
SEDGWICK COUNTY—		
Dickey Oil Co., Yaw 3, se sw ne 20-28s-1e	490	3115
WOODSON COUNTY—		
Dietrick, Witty 1, ne ne nw 18-25s-14e	*	1603

*Failures; †Junked; ¶Million cu. ft. gas.

Smaller Operators Are Closest Spaced in East Texas Field

Tyler, Texas.—Independent producers in the East Texas field have fortified themselves to reap an unproportionate share of the crude remaining to be produced from the giant structure and are rapidly strengthening their advantage over the major companies by leading in new development work. Independents have drilled their properties to an average density of one well to 5.32 acres, as compared to one well to 8.34 acres on properties operated by majors. Current reports on field activity credit the independent group with more than sufficient operations listed to reduce their average well density to less than five acres.

The field has been developed to an average basis of one well to 6.91 acres, using a total of 16,860 oil wells and 116,580 productive acres and indications that it will be drilled to less than one well to five acres. Property values are being endangered by over drilling and cautious buyers are giving considerable thought to this pending threat against a prolific field that has withstood physical waste in the form of wholesale violations of conservation rules in former years.

Majors are destined to produce the short end of the recoverable oil when calculated on a basis of productive acreage held, for when they attempt to step up their average well density to a basis comparable with the average for the entire field the independents do likewise. Most majors fear the consequences that are inevitable for the field to be drilled up beyond an economic basis. It is generally supposed that this fear is largely responsible for the majors to have quit buying properties late last year, except for a 4½-acre property bought last March by one major unit.

The 14 major companies operating in the field are credited with 74,183 productive acres, exclusive of joint interest properties operated by other operators and farmed out tracts. This represents 63.63 percent of the area. These majors have 8898 of the completed wells on properties they operate, or 47.22 percent. They are producing only 238,210 barrels daily, or 53.8 percent, of the allowable production of the field.

Due to close well spacing the independents are allowed to produce 207,491 barrels daily, or 46.19 percent, from 7962 wells on 42,397 productive acres. The independents have 36.36 percent of the acreage but 47.22 percent of the completed wells.

The well spacing program completed by 12 of the large independent units in the field, as shown in the accompanying table, is in line with that of the majors with an average of one well to 8.02 acres. Close spacing of wells is not restricted to the prolific sections of the field, as many independents are drilling wells in sections of the field that yields a high percentage of water and in areas that no longer afford flowing wells on a basis of less than one well to five acres.

No lease in the field, regardless of its smallness, can be definitely counted out as having been drilled up should the owner elect to resort to the many routes available to obtain authorization from the Texas Railroad Commission for an extra well. Scores of leases with more than one well have been drilled to an average density of less than one acre, and new wells are scheduled for a number of these tracts.

Resistance offered by the commission against applications filed for unnecessary tests varies with each petition. Many operators are paying from $250 to $500 for legal fees in obtaining injunctions against the commission through state and federal courts.

Plan Three Tests on Large East Texas Block

Houston.—The Hunter Company of Shreveport, Louisiana, headed by Sam D. Hunter, last week made location for the first of a series of three 2500-foot tests on a 40,000-acre block of acreage it recently assembled in San Augustine and Angelina counties. The new location is Long-Bell Lumber Company 1, Joseph Durst Survey, Angelina County, six miles southwest of Huntington.

In Sabine County, one mile southwest of Hempstead, Smithsonian Petroleum Company (formerly Ed C. Smith et al) of Center, Texas, is drilling below 600 feet in Hamilton 1, John Haley Survey.

Well Spacing in East Texas

Company—	Net Productive Acreage	Gross Productive Acreage	Gross Number Wells	Average No. Acres Per Well	Gross Allowable Production
Humble Oil & Refining Co.	14,477	14,567	1,795	8.12	48,600
Gulf Production Co.	7,634	9,078	1,056	8.59	29,500
Sinclair Prairie Oil Co.	6,769	6,769	797	8.49	20,500
Magnolia Petroleum Co.	6,294	6,600	943	6.99	24,650
Atlantic Oil Prod. Co.	5,448	5,929	823	7.20	25,000
Marathon Oil Co.	5,406	5,406	470	11.50	10,200
Sun Oil Company	4,471	4,840	547	8.85	13,750
Stanolind Oil & Gas Co.	3,463	4,836	507	9.54	13,200
Shell Petroleum Corp.	4,324	4,324	555	7.79	15,000
Tide Water Oil Co.	4,164	4,191	521	8.04	14,600
The Texas Company	3,119	3,133	381	8.22	9,100
Arkansas Fuel Oil Co.	2,672	2,961	299	9.90	7,875
Empire Gas & Fuel Co.	1,249	1,249	174	7.18	5,400
Louisiana Oil Refining Corp.	300	300	30	10.00	835
Total for 14 major companies	69,790	74,183	8,898	8.34	328,210
H. L. Hunt Production Co.	2,160	2,225	264	8.43	6,075
Yount-Lee Oil Co.	2,182	2,182	279	7.82	7,500
Amerada Petroleum Corp.	1,026	1,123	115	9.77	3,270
Simms Oil Co. et al.	634	1,054	85	12.40	2,300
Barnsdall Oil Co. et al.	575	575	78	7.37	2,100
Houston Oil Co. et al.	501	501	65	7.70	1,800
Roeser-Pendleton, Inc.	222	490	65	7.54	1,640
FHE Oil Co., Fleming-Kimbell	364	376	90	4.18	2,615
British-American O.P. Co.	335	335	36	9.57	1,080
Rancho Oil Co.	276	276	61	4.52	1,520
Snowden & McSweeney Co.	253	253	35	7.23	965
Pantepec Oil Co. (Venz)	238	238	27	8.80	730
Total for 12 independents	8,766	9,628	1,200	8.02	31,595
Miscellaneous companies	....	32,769	6,762	4.85	172,896
Grand total	....	116,580	16,860	6.91	442,701

Third Producer at Camp Hill Starts Line Construction

Palestine, Texas. — Completion of a third oil producer from the Sub-Clarksville sand in the Camp Hill area, southern Anderson County, By Gulf Production Company is to be followed by the construction of a four-mile six-inch pipe line connection with Gulf Pipe Line Company's three-unit trunk line at Elkhart station. The three wells prove the northeast to southwest trend for about 1¼ miles. The company's M. J. Ross 1, second test situated about one mile south of the discovery well, was a failure in drilling through the Sub-Charksville and Woodbine zones to Georgetown lime at 5452-76 feet, and two shallow failures have also been completed.

Production was extended to the southwest when M. Maddox 1, SEc 100-acre lease and David Stilts Survey, produced 60 barrels of high gravity oil hourly on a brief gauge through three quarter-inch choke on tubing from Sub-Clarksville sand at 5190-92 feet, or 4535 feet below sea level. Later gauge revealed that the flow was off 50 percent, with pressure on casing and tubing almost reduced to zero. The volume of basic sediment and water was reported at less than two percent. The company's L. B. Ross 1, situated midway between the other two wells, was rated at 3000 barrels initial from Sub-Clarksville at 5134-36½ feet, or 4482½ feet sub-sea, when completed April 12. It registers closed in pressure of 1300 pounds on tubing and 1275 pounds on casing.

Other than a few gassers and nominal oil wells scored on the northwest flank of the Van field, the Sub-Clarksville sand member of the Eagleford shale section overlying the Woodbine has never been productive in the East Texas Woodbine belt. Unless a thicker sand section is found elsewhere in the Camp Hill area, the Sub-Clarksville zone may not afford sufficient oil recovery per acre to be profitable.

Hunt Production Company and Sun Oil Company's Alice Scott 1, Jas. Crawford Survey, third test for the Slocum structure, three miles southeast of the Camp Hill pool, developed sufficient oil from sand at 1145-56 feet to cover slush pits, but the shallow sand was passed up to proceed to the Woodbine. The test was scheduled to reach the Pecan chalk marker late last week.

Operations are to be started immediately on the North Palestine block held by Tide Water Oil Company and Texas Seaboard Oil Company, with the J. B. Daniel Oil & Royalty Company, Fairfield, Texas, contracted to drill a test to the woodbine sand horizon. Location was made last month on the C. T. Valentine 301-acre tract, John Little Survey, nine miles north of Palestine.

In southwestern Anderson County, Gulf Production Company's O. G. Rogers 1, NWc 267½-acre tract, Daniel Parker Survey, five miles southwest of Elkhart, has been eliminated in testing salt water in Woodbine at 5486-5549 feet with an elevation of 301 feet. It was also dry in the Sub-Clarksville.

J. B. Daniel Oil & Royalty Company's P. D. Ball Estate 2, second test on the Red Lake structure, Freestone County, has been shut in after testing for an estimated flow of 20,000,000 feet of dry gas from Woodbine sand at 4831 feet, with an elevation of 421 feet. It is 1900 feet north of the company's discovery gasser, and on a block farmed out by Shell Petroleum Corporation.

The Rusk pool, Cherokee County, gained its third test with the starting of operations late last week by T. J. Wood and Young on New Birmingham 3, situated about 810 feet south by east of their discovery well, which created a lease and royalty last summer for a wide area to the southwest and south of Rusk in making a flowing well from Woodbine sand at 5121-24 feet, or 4692 feet below sea level. The well soon developed a high percentage of water, and the failure of a southwest offset virtually killed interest in the area.

Florence Oil Company and H. A. Baker, Tyler, have made location for a test made tentatively last October on a 3000-acre block five miles northwest of Jacksonville, Cherokee County. Operations are to be started shortly in the northeast part of the T. Smith 40-acre lease, Jose Pineda Survey.

Cayuga Extension Test Shows for Production

Palestine, Texas, April 26.—Formation tester used on Roeser & Pendleton, Inc.'s Wathen 1, second test for the north extension of the Cayuga field, Anderson County, yielded good show of oil and gas from Woodbine sand section at 4064-91 feet, and owners have cemented seven-inch casing to complete at this depth. It was drilled to a sub-sea depth of 3763 feet, affording a safe margin against encountering bottom hole water.

This test by Roeser & Pendleton, Inc., is a south offset to Joe A. Worsham et al's W. F. Wathen 1, which was completed late in March flowing 569 barrels of oil daily through 20/64-inch choke from Woodbine sand at 4091 feet, or 3767 feet below sea level. The latter afforded a 9600-foot northwest extension for the field's oil producing area, and provided the urge for a number of independents to launch a development program on small leases to the south and northeast. Close spacing of wells as proposed by the independents may prove disappointing for the individual well owners, according to those familiar with sand conditions in the Cayuga area, which yields oil production near the contact of the oil sand and water table. Bottom hole water is generally encountered near a sub-sea depth of 3770 feet.

Authorizations to drill single wells on three adjoining 3½-acre leases situated a short distance northeast of the producer held by Worsham et al by the Texas Railroad Commission. In addition to the permit reported last week as having been given Edson Petroleum Company, Houston, Fred Upchurch, Austin atorney, and O. M. Rector, Corsicana, have been authorized to drill on their adjoining 3½-acre leases on the C. L. Loper tract, I. Clendennen Survey, Henderson County, Clark & Cowden Drilling Corporation, Dallas, has spudded a test on the J. W. Barton 9.86-acre lease, Thos. Bristow Survey, situated southeast of the Worsham producer, and W. A. Moncrief and Eddie Showers, Houston, have made a west offset to this new test on their C. L. Loper 21.1-acre lease.

Tide Water Oil Company and Texas Seaboard Oil Company's Tucker Royall & Adam Cone 1-B, SEc 49.73-acre lease, Thos. Bristow Survey, one location north of existing oil production held by the partnership on the discovery block, gave assurance of yielding an oil producer in coring oil sand at 4084-4099 feet. Casing has been cemented at 4091 feet, shutting off seven feet of sand as a means of attaining a balanced gas-oil ratio. Experienced operators in the field have learned that unless the upper gas zone is cased off a completed oil well will convert itself into a gasser.

Hearing Called for New Camp Hill Oil Field

Austin, Texas, April 26.—A hearing May 6 to consider rules for the spacing, drilling, completion and operation of wells in the new Camp Hill field, Anderson County, has been called by the Texas Railroad Commission.

East Texas Drilling Work Again on Increase

Tyler, Texas.—Drilling operations in the East Texas field have taken another upturn in volume, with the small property owners setting the pace on new work. Completions the past week dropped to 86 in number after averaging 101 wells per week for the previous five weeks.

Survey of field work reveals that 195 rigs are in active operation, including 83 for 17 major and large independent companies, and 112 at work on leases owned by the small property owners. The current accounts for 368 operations, including the above active tests: 35 tests standing for various causes; 104 derricks and rigs, with the remainder representing bonifide locations. The 17 leading companies are credited with 170 operations on the current report, while the small units have 190 operations listed.

Major companies were credited with only 27 of the completions reported the past week, and the independents drilled 59, including two junked tests and one dry hole. Pumping equipment was required on eight of the new completions to establish initial gauges.

Humble Oil & Refining Company and Gulf Production Company, largest property owners, are the most active in development work, each having 11 rigs in service. Sinclair Prairie Oil Company, Sun Oil Company and Tide Water Oil Company each have six rigs operating. Magnolia Petroleum Company and Atlantic Oil Producing Company each have 22 operations listed, and are operating nine rigs each.

Upshur Extension

Aggressiveness displayed by independents in following up on the important extension given the productive limits of the field to the northwest from previous outpost wells in Upshur County through recent completion of Delta Drilling Company's E. H. Hamilton 1, Wm. King Survey, may be followed by a series of disappointments. Sun Oil Company's three offsets to Arsell Oil Company's (Howard Russell) S. C. Salter 1, which preceded the well on the Hamilton tract, will likely require pumping equipment in order to make allowable. Sun Oil Company's T. C. Ramey 8 failed to flow in completing at 3783 feet, while the company's S. C. Salter 1-A, NWc 20-acre tract, is awaiting pumping equipment. The company's S. C. Salter 1-B, SEc 27-acre lease, registered a small flow into pits from sand at 3768-76 feet, with the hole bottomed at a subsea depth of 3317 feet. These wells were drilled in with machine due to the close proximity of the oil sand to the known water level.

East Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
T. C. Adams et al, J. E. Arnold 4 (10-ac)	4200	3708
Geo. Despot & T. C. Adams, Deason-Robertson 2 (5-ac)	480	3692
Elm Oil Co., G. W. Eaton-Hosser 9-B (21.52-ac)	6800	3779
Gulf, W. O. Alford 5 (157.05-ac)	7500	3758
W. B. Hinton et al, A. Arterberry 1 (12.2-ac)	8800	3817
Humble, L. R. Lindsey 5-A (42.63-ac)	10,000	3794
L. R. Reid 8 (70-ac)	4000	3691
Hunt Prod. Co., C. N. Dickerson 5 (53-ac)	600	3705
R. W. Fair 18-A (136.72-ac)	9000	3635
R. W. Fair 20-A (136.72-ac)	9600	3664
Illinois Oil Co., Mayfield 16 (197.1-ac)	6800	3811
Mayfield 21 (197.1-ac)	5500	3832
Jenkins Oil Corp.-W. B. Hamilton, Jobe 26 (109-ac)	800	3668
T. A. Johnston & John Owen, J. Jackson 8 (50-ac)	9600	3758
Magnolia, J. B. Wilson 2 (10-ac)	10,000	3642
Manahan Oil Co. (was Jim Cloud), W. F. Neal-Shell 14 (109-ac)	9000	3735
Marathon Oil Co., M. M. Cross 73 (814.84-ac)	7000	3664
H. C. & G. W. Burton 23 (254.44-ac)	8200	3700
T. O. Warren 7 (65.69-ac)	7600	3647
Alex McCutchin et al, T. O. Wright 3, Tr No. 7	5400	3712
Geo. B. Ray Corp., L. J. Finkston 8 (49-ac)	7100	3625
A. D. Roberts & Bros., J. P. Lanham 1-B (8½-ac)	8000	3776
Sutton & Hawkins, L. V. Thompson 1 (43.6-ac)	4300	3664
Tryway Oil Corp., W. H. Worrell 1 (14.81-ac)	240	3620
Venable Oil Co.-McClanahan, Birdwell 21 (150-ac)	10,500	3640
Birdwell 25 (150-ac)	11,000	3627
Wheless Oil Corp., G. Patterson 4 (172.64-ac)	1000	3719
KILGORE AREA—		
Barnsdall Oil Co., Dee Smith-Shell 9-B (39.97-ac)	6000	3590
Capitol Oils, Inc., Mayfield-Shell 1 (33 1/3-ac)	400	3669
Sherow-Shell 1	200	3679
Darby Pet. Co., C. O. Christian 13 (117-ac)	11,500	3714
DeArman Bros. & McMillan, Roberson-Shell 12 (100¾-ac)	360	3688
Devonian Oil Co.-Gulf, Motley 33 (442.1-ac)	9200	3737
Droppleman Drl. Co., L. Martin 3 (22-ac)	†	2673
R. W. Fair & Thompson, Carr 4-A	4600	3509
Lonnie Glasscock et al, H. Goforth 3 (10-ac)	9600	3722
Gulf, M. T. Cole 21 (161.51-ac)	8400	3553
S. Hilburn 82-C (68.95-ac)	6200	3645
Harrison Oil Co.-J. C. Abercrombie Co., M. A. Cantrell 13 (56.28-ac)	8800	3712
Houston Prod. Co., S. S. Laird 3 (9.11-ac)	9500	3696
Humble, H. Sexton 28-B (258.6-ac)	4500	3677
Invincible Oil Co., M. B. Weiss 11 (81-ac)	10,500	3589
M. B. Weiss 16 (81-ac)	10,500	3530
Iowa Payne Oil Co., W. B. Walker 2 (42.33-ac)	4800	3692
Kilgore Ref. Co., F. A. Taylor 1 (10-ac)	*	3616
Wm. C. Leisk-Southern Oil Ref. Co., I&GN Ry. 4 (9.3-ac)	600	3712
John Mabee Consolidated Corp., Cole-Shell 22 (120-ac)	9300	3556
Magnolia, M. B. Hughey 11 (80-ac)	4500	3522
Producers Inv. Corp., R. H. Rowland 5 (5.71-ac)	500	3595
Rozel Oil Corp., Sam Williams 4-B (131.6-ac)	1000	3642
Shasta Oil Co.-Pet. Finance Corp., Laird-Crim 4 (27-ac)	8000	3540
Shell, M. H. Bivins 14-A (113.4-ac)	7500	3611
Rosa Russell 18 (126-ac)	5800	3673
J. B. Watson 42 (385.2-ac)	8000	3639
Sun-Texas Seaboard Oil Co., W. L. Pentecost 12 (131½-ac)	9500	3616
The Texas Co., W. T. Chappell 7 (84.37-ac)	4000	3682
Tide Water, J. M. Blackman 13 (80.86-ac)	10,000	3648
LONGVIEW AREA—		
Arkansas Fuel Oil Co., Thad Snoddy 6 (50.98-ac)	9300	3582
H. Stephens 6 (57.77-ac)	9500	3609
Atlantic O. P. Co., McBee Fisher 11 (58.65-ac)	8700	3497
T. B. Harris 13 (91.54-ac)	9600	3560
H. W. Moyers 17 (128.1-ac)	9400	3603
G. A. Porter 19 (109.23-ac)	9000	3697
Barnsdall Oil Co., G. E. Adams 14 (102.65-ac)	8000	3610
Cabot Carbon Co., L. Graves-Rio 8 (106½-ac)	7500	3592
Empire G&F Co., J. C. Bumpas 13 (57.85-ac)	9200	3530
Gen'l Crude Oil Co., Fee 3 (7.74-ac)	6500	3516
Gilcrease Oil Co., A. Tooke 3-A (23.1-ac)	12,000	3554
Leo Hart, Rec., W. Starr 2	5000	3587
Inland Oil Co.-Monte Oil Co., M. Fenn 7-B (17.6-ac)	8000	3650
Magnolia, R. L. Saulter 9 (55-ac)	7600	3633
Thos. Tuttle 8 (54.66-ac)	9200	3576
Margay Oil Corp., Tom Christian 7 (25-ac)	8000	3694
Port Boliver Co., L. L. Mackey 1-A (100-ac)	†	3583
Roeser-Pendleton, Inc., Nicholson 8-B (75-ac)	7200	3610
Satellite Oil Co., L. M. Colburn 9 (36.85-ac)	9600	3588
Shell, A. N. & V. King 19 (160-ac)	8400	3616
E. L. Smith Oil Co., C. L. Taylor 7-B (25-ac)	9500	3553
Stroube & Stroube, Mackey-Humble 21 (314.6-ac)	4500	3664
Sun Oil Co., S. C. Salter 1-A (20-ac)	500	3742
Allie H. Tarver et al, J. W. Free 5 (28-ac)	9000	3671
W. C. Turnbow Pet. Corp., J. C. Persons 3 (20-ac)	9600	3533
Twin Oil Co., C. J. Mackey-Humble 4 (59.2-ac)	3000	3704
Va. Oil & Ref. Co., W. J. Logan, Rec., T. B. Harris 4-A (21-ac)	9000	3541
J. O. Whittington et al, J. C. Bumpas 8 (31.6-ac)	9800	3563
Yount-Lee Oil Co., J. C. & R. S. McKinley 9-B (84-ac)	9000	3653
J. C. & R. S. McKinley 8-C (57.91-ac)	8000	3627
ANDERSON COUNTY (Camp Hill Field)—		
Gulf Prod. Co., M. Maddox 1 (120-ac)	1500	5192
L. B. Ross 1 (35.7-ac)	3000	5136
VAN ZANDT COUNTY (Van Field)—		
Humble, Sanger Inv. Co. 7 (200-ac)	6500	2889
FREESTONE COUNTY—		
J. B. Daniel Oil & Royalty Co., P. D. C. Ball 2	¶20	4831
LIMESTONE COUNTY—		
C. F. Carter et al, S. E. Dean 1	*	1717
MORRIS COUNTY—		
C. M. Joiner et al, Reese 1	*	3511
SMITH COUNTY—		
Dr. Garland et al, J. W. Bartlett 1	*	3102
VAN ZANDT COUNTY—		
J. C. Acre et al, F. W. Anderson 1	*	1850

*Failures; †Junked; ¶Million cu. ft. gas.

East Texas Lease and Royalty Trades Announced

Tyler, Texas. — Acquisition of The Hunter Company, Inc.'s A. Spear & Laird 92¼-acre lease, Allen Norris Survey, situated in the southern part of the Gregg County Section of the East Texas field, by Chas. L. McMahon, Tulsa, and associates involved a consideration of $528,000, according to reports. Payments included $200,000 cash and a like amount due in eight equal notes, plus $78,000 payable from one fourth of the first production, then an additional sum of $50,000 due from one eighth of the production. The lease was originally developed by Pelican Natural Gas Company, and has 10 flowing wells, rated at from 795 to 945 barrels hourly potential.

W. P. Young and others are reported to have contracted to drill five wells in acquiring Allison Mooney et al's E. L. Walker 320-acre lease, B. A. Van Sickle Survey, Gregg County, situated 2½ miles south of Gladewater and west of the Sabine River. Other consideration includes a cash bonus of $20,000, an additional $37,500 due from one eighth of the production, with Mooney et al retaining one eighth over-riding royalty.

Canadian Exploration Company, Denver, sold royalty interests under three producing properties in Gregg County to Sabine Royalty Company for $57,000. A consideration reported at $38,500 was involved in the transfer of one eighth of the royalty interests under Humble Oil & Refining Company's W. W. Holland 201.63-acre lease, M. Moseley and T. Allen Surveys, with 26 completed wells. Sale of 7½ net royalty acres under Shell Petroleum Corporation's Nellie Jobe 84-acre lease and farmed out portion in the P. W. Warraner Survey, involved $12,000 cash, while one eighth of the royalty interest under Bristow, Wynn & Bailey's Boston Moore 20-acre lease, D. Moore Survey, with six wells, netted $6500. The Denver concern recently sold one thirty-second of the royalty interest under Gulf Production Company's M. O. Sheppard 335-acre lease, Geo. R. Rains Survey, with 40 completed wells, J. L. Dillinger et al for $21,000.

North Holiday Test Shows in Canyon Lime

Wichita Falls, Texas.—Exloration of the Canyon lime horizon in the North Holliday pool, situated on the Archer-Wichita County line, assumed a promising outlook the past week when the T. O. Shappell Oil Company's J. L. Jackson 10 developed a good show of oil in the sandy-lime section at 2530-2565 feet. A string of 5 3/16-inch pipe has been cemented at 2530 feet to make a production test. The well was originally completed in April, 1924, in sand at 1787-1804 feet and is one of a number of tests drilled by the company in the north portion of Archer County in search of production in the Canyon lime, which has heretofore been confined to the Chalk Hill field. Jackson 10 is located 200 feet from the north and 700 feet from the west lines of Block 23, League 4, Denton County School Land Survey.

Opening of a new oil pool in Cooke County has been credited to W. F. Russell et al's Nat Perott 1, situated 845 feet west and 1585 feet north of the southeast corner of BBB&C Ry. Survey, A-128. The well is rated good for 45 barrels daily on pump, and is one mile southeast of production held by the Fain-McGaha Oil Corporation on the A. A. Otto tract. Russell et al logged lime at 697-707 feet followed by 10 feet of oil sand. Formation from 717 to 722 feet was logged as shale, shells and sand showing oil saturation.

The North Texas district scored 49 completions the past week, including 28 pumping wells and 21 dry holes.

Re-organization of Deep Oil Development Company, discoverer of the Chalk Hill field, Archer County, where the company operates 11 deep wells on a 50-50 basis with R. W. Lindsay Drilling Company & Bolin, has resulted in the company diverting its current allowable of 570 barrels daily from a major pipe line connection to a refinery at Olney, Texas. The Kell Interests, owners of a big block of stock in the producing company, and also Olney Oil & Refining Company, which has a 2500-barrel skimming and cracking unit at Olney, arranged for the diversion of the production, using tank cars in making deliveries via the Wichita Falls & Southern Railroad at 10 cents per barrel tariff.

Central Gray County Area Not Up to Expectations

Pampa, Texas.—The oil producing area uncovered late last year on the Taylor land in south central Gray County and on the south flank of the granite ridge has failed to fulfill expectations after receiving a good start when The Texas Company's W. H. Taylor 1-C, C NW Section 52, Block B-2, H&GN Ry. Survey, made 233 barrels initial at 3006 feet. Clayton & Dwyer Drilling Company's W. H. Taylor 1, NWc NW NE Section 51, situated less than one mile to the southeast, entered the granite section at 2720 feet, or several hundred feet above the projected oil horizon. It was drilled to 3150 feet, or 210 feet below set level, and plugged back for completion as an 8,500,000-foot gasser after shot in lime at 2610-75 feet. The Texas Company's Taylor 1-D, several miles southwest of the producer, was completed last February as a small gasser after plugging back from salt water at 3183 feet to 3105 feet.

Champlin Refining Company's J. J. Taylor 1, SWc Section 6, situated 3½ miles northeast of the producer, is nearing a decisive stage, having logged top of first dolomite lime at 1830 feet, with an elevation of 2848 feet. It is about 15 feet higher on structure, using the lime marker, than Shamrock Oil & Gas Company's Taylor 1, NEc NW same section, and the latter was abandoned in February, 1930, after drilling into salt water at 3308 feet.

King Royalty Company, Wichita Falls, continues active in acquiring oil properties in the Texas Panhandle, having concluded another deal the past week. In purchasing A. R. Anderson and Bean's R. B. Thompson 160-acre lease, consisting of the NW Section 126, Block 3, I&GN Ry. Survey, Gray County, the former concern obligated itself to start work on four new tests shortly. The consideration was not made public. The Thompson lease has three wells with a combined potential rating of 632 barrels, and an allowable of 97 barrels daily.

New production in the district dropped off to 1180 barrels oil and 48,000,000 feet of gas the past week due to the absence of the customary large completions in western Wheeler County. There were seven oil producers and two gassers completed during this period. A single dry hole was credited to The Texas Company's J. S. Carwile 5, situated 990 feet from the south and east lines of the SE Section 51, Block 24, H&GN Ry. Survey, situated near prolific oil wells in western Wheeler County. This failure drilled into salt water at 2540-65 feet, and made an unsuccessful effort to plug back.

Texas Panhandle Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
The Texas Co., J. L. Noel 5	175	3300
GRAY COUNTY—		
British-American O. P. Co., A. Smith-Shell 5	235	3209
Clayton & Dwyer Drl. Co., W. H. Taylor 1	¶8½	3150
Gulf, R. B. Thompson 8	375	3275
Suloch Oil Co., J. S. Morse 5	210	2700
WHEELER COUNTY—		
Alma Oil Co., Johnson-Gulf 7	40	2512
Dumar O&G Co., T. Atkins 1	¶36½	1849
Remo Royalty Co., Hunter-Martin 1-A	50	2218
Skelly Oil Co., J. J. Perkins 1-B	95	2537
The Texas Co., J. S. Carwile 5	*	2541

*Failures; †Junked; ¶Million cu. ft. gas.

West Texas Completions Include Small Producers

San Angelo, Texas.—An aggregate of 7021 barrels of new production was added by West Texas fields the past week through the completion of 18 oil producers. The district also was credited with four dry holes and one junked test.

Ward County was the largest contributor of new production, having six of the new wells, and Winkler County was a runnerup with three flowing wells in the Sayre and Kermit sandy-lime areas. Gulf Production Company's Crier-McElroy 14, situated on the company's large leasehold on the Crane-Upton County line, scored an initail gauge of 1474 barrels of 32 gravity oil and 1,338,000 feet of gas via seven-inch casing from lime at 2904 feet.

Jones County added two of the failures and also the junked test, while Garza and Howard Counties each were credited with a dry hole. In the latter county, W. E. Production Company's (Wooten & Ellis) C. D. Read 1, SWc Section 41, Block 40, T&P Ry. Survey, T-1-N, made an unsuccessful try at extending the Denman field, and was abandoned at 2830 feet.

West Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY—		
Humble, J. S. Means 3	700	4525
CRANE COUNTY—		
Gulf Prod. Co., Crier-McElroy 14	¶1¼-1475	2904
Wahlenmaier Pet. Corp., Kloh 1	20	3696
ECTOR COUNTY—		
Stanolind, J. M. Cowden 15	320	4350
GARZA COUNTY—		
M. L. Richards et al, J. R. Sullivan 1	*	2346
HOWARD COUNTY—		
Sinclair Prairie, G. M. Dodge 15	135	2846
W. E. Production Co., C. D. Read 1	*	2830
JONES COUNTY—		
W. W. Fondren Prod. Co., S. R. Cox 1	*	2400
Shappell Oil Co., B. A. Stephenson 1	*	2110
Ungren & Frazier, Steele 1	Jkd.	1207
PECOS COUNTY—		
M. H. Black et al, Pecos Valley Oil Co. 2, sec 34	20	1575
Corvette Oil Corp., H. Monroe 3-A	90	460
RUNNELS COUNTY—		
Golden Pet. Co., McMillan-Sun 7	35	2524
UPTON COUNTY—		
Stanolind, A. S. Burleson 37	220	2021
WARD COUNTY—		
California Co., B. D. Durgin 21	620	2535
Cook Drl. Co., Lee Wood-Stewart 1	6	2548
Gulf, Hutchings 39	¶1¼-535	2790
G. W. O'Brien 55	495	2787
Prince Bros. Drl. Co., J. F. York-Penn 2	555	2538
Tex-Mex Pet. Corp., Owens-Shell 4-B	480	3035
WINKLER COUNTY—		
Barnsdall Oil Co., Brown-Altman 1-B	290	3210
Sayre Oil Co., Lum Daugherty 2	¶2-420	2971
J. F. Howe 2-B	605	2968

*Failures; †Junked; ¶Million cu. ft. gas.

North Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, E. E. Hildebrandt 3, blk 143	210	1158
R. A. Clampitt et al, S. M. J. Benson 1-B, sec 1808	25	828
John G. Cope et al, H. O. Prideaux 1	*	788
F. P. Cullum et al, Falls-Ellis 37, blk 7	85	1177
Cullum & Alexander, Abercrombie 1-A, blk 159	*	1316
Falls County 32, blk 19	90	1095
Falls County 33, blk 19	500	1096
Fain-McGaha Oil Corp., E. R. Fain 6-B, blk 2	*	1796
E. R. Prideaux 1	*	745
FHE Oil Co. et al, W. T. Richardson 2, sec 2424	15	1438
W. T. Richardson 3, sec 2424	10	1447
Luther A. Hedrick et al, J. Stinnett 1, blk 7	*	852
M. T. McLaughlin et al, J. Rater 1	*	738
Perkins-Cullum Oil Co., Falls 159, blk 18	750	1107
Falls-Carey 8, blk 4	15	1203
Pet. Producers Co., F. Brazina 3, sec 2410	*	1527
Harmonson 16	75	978
Pois & Schultz, F. C. Green 31	50	1157
Ray & Staniforth, T. B. Wilson 4-B	100	1608
G. Y. Rogers et al, F. Brazina 2, sec 2410	55	1438
White & Duncan, S. Webb 4-B, blk 4	13	716
BAYLOR COUNTY—		
Consolidated Oil Co.-Pet. Prod. Co., W. H. Portwood 2-D, sec 1587	160	1380
Ray & Staniforth, Portwood 1-A, sec 1587	150	1384
COOKE COUNTY—		
Reinheart et al, J. W. Mount 1	*	1804
Seitz-Comegys & Seitz, Inc., Joe Wiseman 1	*	1602
Worth-Tex Drl. Co., J. Eberhard 1, blk 18	*	1520
COTTLE COUNTY—		
The Texas Co., Les Johnson-Mc Adams 7	*	3894
GRAYSON COUNTY—		
J. C. Moore et al, J. H. Haynes 1	*	723
JACK COUNTY—		
Richeart & Sprague, Ed. Sewell 1	*	1250
E. H. Van Patten et al, J. A. Burt 1	*	415
W. M. Jackson 1, sec 2	*	405
MONTAGUE COUNTY—		
The Texas Co., H. D. Fields 2	7	1717
THROCKMORTON COUNTY—		
Glengarry Oil Co., H. B. Brown 1, sec 1602	*	892
WICHITA COUNTY—		
Bonner Oil Co., Watkins 5, blk 46	4	181
Golding & Cochran, Waggoner Bros. 17-C, blk 17	*	1895
Waggoner Bros. 5-D	*	860
Hammond Oil Co., J. C. Strauss 1	50	3875
Humble, Wichita-Taylor 30, blk 81	20	835
Pet. Producers Co., 1st Nat'l Bank 72, sec 29	*	1834
A. B. Wharton, Jr., et al, Waggoner Est. 3-B, sec 2	150	1995
YOUNG COUNTY—		
O. T. Anderson Oil Co., Belknap 4, sec 23	10	663
Boyd & Kimberlin, A. C. McDannald 2	5	596
C. S. Davis et al, F. V. Henson 1, sec 1454	*	906
I. W. Place et al, A. L. Keeter 1, sec 246	*	167
Rathke Oil Co., C. E. Graham 9, sec 3401	20	924
E. R. Riggs et al, Larrimore 2-C, sec 2247	15	614
The Texas Co., Finch 9-B, sec 40	5	767
Jeffery 9-B, sec 42	55	748
S. V. White et al, W. J. Logan 1, sec 69	35	1204

*Failures; †Junked; ¶Million cu. ft. gas.

New Port Lavaca Field Assumes Major Importance

San Antonio, Texas.—Port Lavaca field, Calhoun County, now takes on the appearance of being the most important deep strike made to date in the South Texas portion of the Gulf Coast. Judging from the number of supply houses and rigs being moved into the field and other preparations made for development, it will experience an immediate heavy drilling campaign.

There were a half dozen rigs running early in the week and several more were scheduled to be moved in within the next several days. New lease deals call for immediate development campaigns.

Three supply houses have made definite plans for opening supply houses at or near the town of Port Lavaca, while five lumber yards already have been established. In addition, vacant store buildings are being rapidly filled and a number of new places are now under construction to provide both lodging and other facilities.

Torsion balance picture of the structure indicates probably 4000 acres of productive area. Other surveys indicate an even larger structure, projecting into the bay. This will mean marine drilling problems as well as other obstacles. A townsite drilling situation is possible.

The Texas Company, Humble Oil & Refining Company and Tide Water Oil Company have shooting crews in the area at this time attempting to line out the structure. Across the bay, a torsion balance crew is being worked by Atlantic Oil Producing Company.

Several large transactions were reported. Mills Bennett purchased the 40-acre Weichert lease on the Bickford estate, offsetting the discovery well on the north. The price was said to be $800 per acre, cash and oil, plus a 1/24 overriding royalty. Adrian Moore took two tracts from T. Talliferro for a cash consideration of $17,000, with an obligation to drill one free well on each. Neither tract is close to production. Walter Golston the north 20 acres of the D. C. Roemer tract and E. Mathews, the south 20 acres of the same 40-acre tract. They are one half-mile southwest of the discovery oil well.

The Texas Company has started a campaign which likely will involve the drilling of at least 20 wells. This company held 27 leases in the immediate area, but was able to renew leases on only seven of them. Part of the expiring property has been top leased.

Halliburton Oil Company, which held the controlling interest in Steen Drilling Company and Lavaca Oil Company, has purchased full control of all the properties and interests in both companies as well as the properties of W. T. Dick, and will operate under the name of Halliburtin Oil Producting Company.

Same Company Opens a Field, Proves Another in San Patricio

San Antonio, Texas.—Plymouth Oil Company opened one new field and established commercial oil production in another San Patricio County area. Both wildcats are on the Bob Welder Ranch and are below 5400 feet in the Frio.

Plymouth Oil Company's Welder 1-c 10 miles northeast of the town of Sinton, is flowing 11 barrels an hour through ⅜-inch choke on tubing and showing a working pressure of 165 pounds. Closed in pressure is 425 pounds. With an elevation of 55 feet, derrick floor, the well cored sand at 5501-8 feet, immediately above which seven-inch casing was set. The oil is 32 gravity.

It is located 2000 feet from north and east lines of Section 49 of a re-subdivision of the Welder ranch. It is three miles southeast of the Aransas gas field, about two miles from the Refugio County line and about the same distance from Chiltipin Creek.

Several miles of pipe line is being strung west from this well to railroad siding, where a 5000-barrel storage tank is being erected. Loading racks also are to be erected immediately.

The second wildcat of this company to flow oil during the week is Welder 3-A, which is cleaning through ⅛-inch choke showing a working pressure of 1000 pounds and a casing pressure of 1400 pounds. The well is said to be making around six barrels of oil per hour, although no gauge has been taken.

It is located 600 feet east and 2150 feet south of Welder 1-A, discovery well. Both are in the J. M. Portillo Survey. It is about midway between the discovery well and Heep Oil Corporation's Welder 1-B, which made a 30-barrel well, jetting from a total depth of 5454 feet. There is only one other oil well in the field, Heep Oil Corporation's Welder 1-A, flowing about 80 barrels per day from a sand at 5880 feet. It is on the extreme southeast flank of the field.

Heep Oil Corporation is moving in rig for Welder 1-C, to be drilled on a 400-acre tract about ¾-mile southwest of the Plymouth Oil Company's Welder 1-C.

Both the Sinton and the new production on the Welder C block are the result of geophysical and geological work.

Al Buchanan, drilling contractor of San Antonio, has drilled all of the Plymouth Oil Company wells in this area under contract.

About 1½ miles north of the Angelita field discovery well, A. E. Masterson et al's W. A. Wurzbach 1, Hornsby Survey, is coring at 5434 feet. It has not picked up the sand and looks like it will not make a producer at the level the first test produced.

Humble Oil & Refining Company's Welder 10, 6000 feet northwest of the Angelita discovery well, is preparing to abandon at 7131 feet, after an electric formation testing device failed to record any interesting horizons.

Dirks Field Extended 3500 Feet to North

San Antonio, Texas.—Dirks field, Bee County, was extended 3500 feet northward during the week by Mills Bennett and W. F. Morgan's Bassinger 1, which showed for an excellent producer on drill stem test. The well is the third to be drilled in this new field and appears to be its second producer.

With an elevation of 346 feet, derrick floor, the sand was topped at 3847 feet and cored to 3853 feet, where a drill stem test showed 600 feet of oil and 30 pounds pressure in 15 minutes. Casing has been set and plugs are being drilled. The well is 24 feet higher than the discovery test.

As a result of the showing in this well, several new locations have been announced, which will bring about the development of this field. It was discovered several months ago, but no work was done due to the fact that companies holding acreage were busy developing leases in the West Tuleta field. With the decline in work there, attention is now turned to this area.

Mills Bennett has location for Bassinger 1-A, NW SE NW Section 7, midway between the discovery and the extension well. Dirks Brothers have location of J. E. Roth 2, north offset to the discovery well. Wrightsman Oil Company's Bassinger 1 is a west offset to the extension well. The Texas Company is obligated to drill an offset to the extension well.

Another southwest extension to the West Tuleta field was effected during the week through the completion of Dirks Brothers George A. Ray 2, W. B. Blanchard Survey, flowing 210 barrels per day through 5/32-inch choke on tubing from sand at 3929-34 feet. It has tubing pressure of 200 pounds and casing pressure of 400 pounds. The well is more than a quarter of a mile southwest of production.

Locations have been made in this new section of the field by Stanolind Oil & Gas Company, Magnolia Petroleum Company, Dirks Brothers, Leslie McKay, Jamison and Byron, and several rigs have been moved in.

The northeastern side of the field continues to be widened. Edwin M. Jones has made four locations on the J. M. Rapp land along the south line of the NW Section 5, and is drilling Rapp 3 at 2000 feet. Jones' D. E. Robinson 7 is good for eight barrels an hour through ¼-inch choke at 3935-44 feet, while Robinson 16 is a five-barrel an hour producer through ¼-inch choke through perforations at 3960-65 feet. Total depth is 4200 feet. Both wells are in SW Section 5.

Several interesting tests are in process of completion in the Caeser field. Caeser Oil Company's Miller 5, an inside location, is in process of completion. Just east of it, El Toro Oil Company's Gardner is a producer, but not fully completed. Southwest of the producing area, Tother Oil Company's J. T. Hudman 1 failed to make a producer at 3117 feet and perforated at 3075-90 feet. It is testing at that level.

Producing Wells Added In Refugio Fields

San Antonio, Texas.—Several more producers have been completed in Refugio County fields.

Hewitt & Dougherty's M. F. Lambert 17, Block 9, is estimated at 12 barrels per hour from sand at 4371-75 feet. The well is flowing through ¼-inch choke showing tubing pressure of 250 pounds and casing pressure of 750 pounds. Same operators have started Lambert 18 on the same block.

United Production Company's M. F. Lambert 16, Block 8, is flowing 15 barrels per hour through ¼-inch choke from 4376 feet, showing 400 pounds tubing pressure and 950 pounds casing pressure. M. F. Lambert 17, also in Block 8, is a completion at 4385 feet, but not gauged. M. F. Lambert 18 is flowing 12 barrels per hour through ¼-inch choke from 3518 feet, showing tubing pressure of 190 pounds and casing pressure of 300 pounds. M. F. Lambert 19, Block 13, is being finished at 3502 feet.

The United Production Company and Hewitt and Dougherty wells are located in the Carr and Connell surveys.

Humble Oil & Refining Company's J. F. B. Heard 19, John Peoples Survey, in the north end of the field, has been completed as a pumping well at 4404 feet. All other wells in the field are flowing.

The only other active operation in the field is Stanolind Oil & Gas Company's J. F. Welder 3, drilling below 3000 feet.

Quintana Petroleum Corporation's Tom O'Connor 8-A, Swisher Survey, is completing at 5867 feet. Locations have been made for 9-A and 10-A. All are in the Tomoconnor field.

Map shows location of Gillispie & Son and Superior Oil Company's Henderson & Pickering wildcat producer in southeastern Victoria County. Oil production to the northeast is that of the Keeran field, being developed by Gulf Production Company. Map courtesy of Alling Blue Print Company, San Antonio, Texas.

McNeill Discovery Deepened and Flows

San Antonio, Texas.—Lion Oil Refining Company's P. E. McNeill Estate 1, discovery well of the McNeill field, Live Oak County, is flowing 18 barrels of fluid per hour, still cleaning, after being deepened six feet to 4382 feet. Tubing pressure is 360 pounds, casing pressure 750 pounds. The well was completed August 17, 1934, from sand at 4370-76 feet, showing 264 barrels of 44.5 gravity oil per day through ¼-inch choke, showing tubing pressure of 200 pounds and casing pressure of 350 pounds. Oil volume declined during the several months of production.

A due south offset to the discovery well showed an initial flow of 1050 barrels of oil per day through ¼-inch choke, by taking in more formation than did the discovery. This prompted the deepening of the discovery well.

In the North Lucas field, Smith & Storey have made location for a northwest offset to the discovery well and are rigging up. It is in the center of a six-acre tract and is known as Dinero Town Tract 1.

Hastings Hearing Set by Commission

Austin, Texas.—A hearing on the new Hastings Field, Brazoria County, has been set for May 3, by the Texas Railroad Commission.

The commission will at that time consider proper rules for the spacing, drilling, completion and operation of wells in the field.

Four Locations Made In New Victoria Area

San Antonio, Texas.—Four locations have been staked in the new Placedo field of Victoria County, recently discovered by Gillispie & Son and Superior Oil Company in Henderson and Pickering 1, producing 350 barrels 35 gravity oil per day through 3/16-inch choke from sand at 6005-18 feet. This well also is known as Moore & Ahern.

Gillispie and Superior have started Henderson & Pickering 2, east corner Block 6, Dean Survey, ¾-mile northwest of the discovery. Same operators have location for a west offset and a south offset to the discovery well.

Costa Oil Company (Ahern et al) are rigging up for J. E. Schovajsa 1, north

corner of Lot 14, Rupley Survey, one mile southwest of the discovery well.

In the McFaddin area, farther southwest along trend, Shell Petroleum Corporation's A. M. McFaddin 1, J. Varin Survey, is a 50,000,000-foot gasser at 3496-3512 feet, showing tubing pressure of 900 pounds and casing pressure of 1050 pounds. The Texas Company's A. M. McFaddin 9, in the same field, is drilling around 3000 feet.

Carolina-Texas Test Showing in Cook Mountain

San Antonio, Texas.—Carolina-Texas Oil & Gas Trust's Benavides 11, Carolina-Texas field, of Webb County, showed for a high gravity oil producer in the lower Cook Mountain at 4993 feet. It topped a sand section with few shale breaks at 4974 feet, which continued to the bottom of the hole.

An electric formation testing device was run, showing sufficient porosity and kick to warrant setting of a string of casing to 4974 feet. Cores were fairly well saturated with high gravity oil, the saturation increasing in the lower portion of the hole.

This sand is said to be either the Weches or Queen City section of the Cook Mountain. It is 1600 feet lower than any other production in the Carolina-Texas field. This well had been a producer at 3343 feet, but was deepened. The deepest production in the Mirando district is in the Cole field near the Bruni townsite, where a number of excellent flowing wells have been completed in the Basal Yegua at approximately 3400 feet.

The exact location of the potential producer is 660 feet from the west line and 150 feet from the south line of NE Section 683.

If a producer results, a fair drilling campaign is in prospect inasmuch as this field is fairly well broken up with lease holders. It was one of the earlier areas to be developed in the Mirando district and small tracts have been perpetuated through producers. Only a few tests are actually on production, but the status of the leases is likely the same as at the time they were actually producing insofar as ownership is concerned.

Hidalgo County Promises Production in Two Spots

San Antonio, Texas.—One wildcat was in process of completion and another was setting casing in Hidalgo County, both give promise of opening new producing areas in the Rio Grande Valley district.

Union Sulphur Company's American Rio Grande Land & Irrigation Company, 12 miles north of Mercedes, was flowing at the rate of eight barrels per hour through 3/16-inch choke, showing a working pressure of 700 pounds, late in the week, definitely establishing the second producing area in this county. The well was drilled to 7493 feet, casing set at 7477 feet, but it is said that the production is coming from just above this depth after the well was plugged back several feet. The gravity is reported to be between 54 and 59 degrees.

The well is located in Lot 2082, Block 86, North Capisallo district, Llano Grande Grant.

The other well is D.M.C. Oil Company (Downey and Morton), Daskam 1, Block 34, Porcion 45, several miles northeast of the Samfordyce field. It cored to 4114 feet, after topping sand at 4090 feet. The cores showed gas sand from 4090-4100 feet, lime from 4100-4102 feet, sand with thin breaks from 4102-4114 feet. A formation testing device was run, showing a good kick, porosity and saturation. Casing is being set to the lime cap.

South Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BASTROP COUNTY—		
Hiriam Edwards, Murchison 1, 11,200 ft nwl, 4200 ft swl A. Litton sur..	*	2400
BEE COUNTY—		
Mills Bennett, Tuleta Merc. Co. 3, sw sec 10, J. M. Uranga Gr (W. Tuleta) .	240	3907
Dirks Bros., Geo. A. Ray 2 (1), W. B. Blanchard sur (W. Tuleta)...	210	3934
R. C. Harris 1, C. A. Dugat sur (Dirks) .	*	lcn.
Heyser, Heard & Walton, Stridek 1, blk 3, ne sec 20, J. M. Uranga Gr (W. Tuleta)	*	lcn.
Edwin M. Jones, D. E. Robinson 7, sw sec 5, J. M. Uranga Gr (W. Tuleta) .	225	3944
D. E. Robinson 16, sw sec 5, J. M. Uranga Gr (W. Tuleta) perf csg 3960-65	200	4200
Rual B. Swiger et al, C. A. Gardner 3, F. Lewis sur (Caeser), tested for gasser	*	3036
Tuleta Oil Co., Skinner Harris 8, nw sec 10, J. M. Uranga Gr (W. Tuleta) .	300	3952
DUVAL COUNTY—		
Humble O&R Co., Ruiz Est 3, sec 553, (Loma Novio)	312	2799
Magnolia Pet. Co., C. W. Hahl 1, sec 67 (Loma Novio)	*	2945
W. L. Pearson et al, Fitzsimmons 1, sec 291	*	4552
Reynosa Oil Co., Lundell 3, se ne ne sec 60 (Govt Wells)	*	lcn.
Smith, Hamil & Ogden, G. Ruiz Est 1, 330 ft sl & el e 220-ac of n 320 ac sec 41, 1 mi n Loma Novio field	*	2905
Wayne Oil Co., Curry 3, nw ne sw sec 62 (Gov't Wells)	*	lcn.
FRIO COUNTY—		
Amerada Pet. Corp., Davies & Burke 1, 1320 ft nwl, 330 ft nel of B. L. Crouch sur, 3200 ft sw Pearsall field .	700	3921
GUADALUPE COUNTY—		
Siedeman, Fee 2, 400 ft nwl, 360 ft nel of 147-ac tr, Esnaurrizar sur..	*	2980
HIDALGO COUNTY—		
D. D. Oil Co., Brock & Showers 1, 330 ft nl & el Lot 8, blk 9, Vista Hermosa sub, Por 80	*	6003
Davis, Harrison & Bishop, F. Guerra 1, sh 12, por 41, (Samfordyce)...	*	lcn.
Gem Oil Co., Seabury et al 1-B, sh 256, por 38 (Samfordyce).....	150	2807
H. J. Porter et al, W. R. Jackson 1, Tr 278, por 40 (Samfordyce)	250	2793
E. L. Smith Oil Co., G. G. Salinas et al, 1001 ft wl, 548 ft nl of sh 10, port 41, mile northeast Samfordyce field .	*	3011
LIVE OAK COUNTY—		
Henderson Coquat et al, Sartain 1, 1320 ft sl and wl sec 42, Simmons sub, in blk 12	*	1762
Neversuch Oil Co., H. H. Ueckert 1, 330 ft sl and wl of 320-ac tr, blk 121, Wm. Hatton sur	*	2218
L. D. Ormsby, Etta Terrell 1, 1400 ft nwl, 2600 ft nel of tr, Elizabeth Jurdin sur	*	1520
McMULLEN COUNTY—		
Longhorn Oil Co., H. L. Lark 4, blk 14, Lark sub, E. W. B. Scrugham sur (Jacob)	3	1044
Motes & Bedingfield, H. L. Lark 4, blk 133, Lark sub, E. W. B. Scrugham sur (Jacob)	75	1004
H. L. Lark 6, blk 134, Lark sub, E. W. B. Scrugham sur (Jacob)..	75	1002
REFUGIO COUNTY—		
Hewitt & Dougherty, M. F. Lambert 17, blk 9, Carr & Connell sur (Greta) .	300	4375
Houston Oil Co., Pratt-Hewitt-Rooke 21, Mullin sur (Refugio)	450	4912
Humble O&R Co., J. F. B. Heard 19, John Peoples sur (Greta)	150	4404
United Prod. Co., M. F. Lambert 16, blk 8, Carr & Connell sur (Greta) .	350	4376
M. F. Lambert 18, blk 13, Carr & Connell sur (Greta)	300	3518
SAN PATRICIO COUNTY—		
Plymouth Oil Co., Welder 1-C, 2000 ft nl & el sec 49, re-sub of Welder ranch (opens new field)	350	5508
STARR COUNTY—		
John H. Clopton, Roos et al 1, 13,155 ft n Highway 4, 3800 ft w of el of por 92	*	4818
H. L. Curry, Kelsey Bass 1, 2520 ft nl, 830 ft el, Tr 8, por 75-76-77...	*	1712
Danewood Oil Co., Garza 1, 5280 ft nl sh 26, 1900 ft wl por 71	*	lcn.
Merren, Johnson & Bond, Starr County Cattle Co. 4, blk 24, J. L. Sub, por 89, perf 2704-12 (Barbacoas) .	¶18	4213
Mitchell et al, R. G. Salinas 1, 800 ft wl, 1695 ft nl sh 39, por 80....	*	1626
Sioux Oil Co., Goodrich 7, blk 3, tr 5, por 81 (Rio Grande City)...	120	1366
WEBB COUNTY—		
American Liberty Oil Co., A. M. Bruni 16-A, sur 6, Arispe Gr (Cole-Bruni townsite)	500	3426
Associated Oil Co., A. M. Bruni 3, sur 7, Arispe Gr (Cole-Bruni townsite) .	900	3395
Magnolia Pet. Co., S. Benavides 8, blk 7, Seacord sub, Mesquite Gr (Cole) .	30	2824
Magnolia Pet Co., Fee 3, sur 697 (W. Cole)	40	2336
WILLIAMSON COUNTY—		
McGee et al, S. G. Genert 1, 2350 ft nwl, 2900 ft nel Thos. A. Moore sur .	*	1083
G. L. Rowsey, Trustee, Sladek 3-C, H. White sur (Byersville)	3	890
Sladek 6-C, H. White sur (Byersville) .	*	1050
ZAPATA COUNTY—		
The Texas Co., Measles 66, C. Blanco Gr (Escobas)	55	1220

*Failures; †Junked; ¶Million cu. ft. gas.

Another Bee County Field Appears Probable

San Antonio, Texas.—Another Bee County oil field appears in prospect with Felmont Corporation's J. T. Earnest 1, four miles southeast of Yougeen, testing a saturated sand at 4729½-34 feet, in the Hockleyensis. The well is on one of the most highly touted structures that has been worked in several years. It has been checked with geophysical instruments and geological study has been made. The structure covers several thousand acres and is possibly four miles long, trending east and west. The acreage is fairly well broken up between several major companies as well as a few independents, hence a successful completion of this test will bring a drilling campaign.

The exact location is 2200 feet from the east line and 466 feet from the north line of Bee County School Land Survey. The Hockleyensis zone was said to have been topped between 4620-32 feet.

An electric formation testing device was being run, after which a drill stem test likely would be attempted.

Two Locations Staked In Dickinson Field

Houston.—Two new locations were announced in the Dickinson field, Galveston County, by the Humble Oil & Refining Company and Stanolind Oil & Gas Company.

Humble Oil & Refining Company's E. E. Townes 1, is an east offset to Pure Oil Company's Schelor 1, and 430 feet east of the west line and 500 feet north of the north bank of the Dickinson Bayou in the B. B. B. & C. Survey. Stanolind Oil & Gas Company's State Lands 1, is located 247 varas due south of Humble Oil & Refining Company's Jones 1 and located in the Dickinson Bayou.

Humble Oil & Refining Company's Danielson 1, which discovered a new deep sand for the field two weeks ago is now shut in for storage. On the last 24-hour gauge the well made 713 barrels through a quarter-inch choke with tubing pressure of 1525 pounds; casing 225 pounds. The well is producing from 9140 feet.

The same operator's Maco Stewart A-3, midway between the discovery well and Humble Oil & Refining Company's Jones 1, J. Sellers Survey, was waiting on seven-inch casing to set at 8077 feet with the bottom of the hole at 8146 feet. Oil sand was cored from 8077 to 8079 feet and from 8116 to 8118 feet and another from 8132 to 8133 feet.

One Well to 20 Acres Proposed for Anahuac

Austin, Texas, April 26.—A twenty-acre spacing rule for the new Anahuac field, Chambers County, was advocated by operators at a hearing before the Texas Railroad Commission April 26. Frank Mechaux, geologist for the Humble Oil & Refining Company, stated that in his opinion the productive limits of the field would not extend beyond properties held by major companies.

Since the smallest lease within this area contained approximately 40 acres, Gordon Griffin, chief petroleum engineer of the commission, indicated that he would recommend compliance with the rule. He declared himself opposed to one phase of the spacing plan offered which would forbid allowance of exceptions to the spacing rule unless they complied with the rule. Substantially Griffin also opposed a suggested plan of allocation which would have prorated the field exclusively on the acreage basis. He urged a potential allowance to be combined with the average allowance and to this the operators agreed. Griffin's recommendations will be considered by the commissioners before an order is issued.

Manvel Field Has One Failure and One Producer

Houston. — Sterling Oil & Refining Company's Gamble 1, on the northwest flank of the Manvel field, Brazoria County, was completed as a dry hole at the close of the past week after testing salt water at 4124 feet. The hole was drilled to 6005 feet, then plugged back to 3000 feet and redrilled to the abandoned depth. The well is located 375 feet west and 250 feet from the north line of 10-acre tract in the E. Little Survey, Block 78.

Bowles & Borsodie's Norvel 2, on the north flank of the field, was recompleted in the Marginulina formation during the past week at 5682 feet for 412 barrels per day. The former depth was 5672 feet. When carried down 20 feet deeper and the well came in for the above initial production through a quarter-inch choke with 350 pounds on the tubing and 1100 pounds on the casing. Sand was topped at 5604 feet and seven-inch casing was set at that depth.

Polk County Well

Houston. — Gulf Production Company has made location on its large block in Polk and Trinity Counties. The well is being drilled on Trinity Lumber Company's land in Polk County and is 600 feet north of the west line of the survey thence east at right angles from southwest corner of Oliver Peterson A-475 Survey.

Two Workovers Produce In East Mykawa Field

Houston.—Two new workover wells were added to the East Maykawa field, Harris County, when West Production Company completed C. Holmes 1, for 190 barrels a day through a three-sixteenths-inch choke from 4561 feet. The hole was originally completed at 4750 feet but was plugged back. The same operator's Forbes 1, was first completed at 4595 feet and the operators plugged back to 4565 feet and reset and the well came in for 195 barrels per day through a three-sixteenths-inch choke. Both wells are in the F. J. Rothass Survey.

Sterling Oil & Refining Corporation is going to drill Mrs. Lena Wagenhauser 1, approximately 1050 feet east of the west line and 445 feet south of the north line of F. J. Rothass Survey. It is located in the center of Lot 10.

Stanolind Oil & Gas Company is reported to have purchased the east five acres of Lot 30 and the north five acres of Lot 117 of the Minnetex Farm in the Mykawa field of Harris County.

San Jacinto Test

Houston. — Shell Petroleum Corporation's Moore 1, wildcat, was announced during the past week in San Jacinto County. The well is located 1250 feet north and 5400 feet east of the southwest corner of J. D. Martinez Survey No. 3. The well is being drilled on the Moore lease.

Citrus Grove Test

Houston.—Another wildcat test is to be drilled on the Citrus Grove prospect in Matagorda County, Continental Oil Company's Feife 1, 3000 feet east and 2800 feet north of the southwest corner of J. S. Chriswell Survey.

Washington County Wildcat

Houston. — In Washington County Powers Production Company made location for Boenker 1, a wildcat located 550 feet south and 250 feet from the northwest corner of S. M. Dadson 160-acre tract in the J. Newman Survey.

Well Abandoned

Houston.—Koch & Duffey's L. W. Alberry 1, near Diboll, J. A. Prado Survey, Angelina County, was abandoned during the past week after standing for some time at 2020 feet. On a drill stem test from 2012 to 2014 feet it showed fresh water.

Stanolind Makes Location For Another Hastings Test

Houston.—Stanolind Oil & Gas Company has made location for H. G. Williams 1, in the Hastings field, Brazoria County. The well is located 466 feet north and 1126 feet west of the most easterly southwest corner of 81-acre tract in the A. C. H. & B. Survey No. 1.

Pure Oil Company leased the State Prison farms during the past week. The 1785 acres connects to the company's Peach Point block.

Drill Stem Test to Be Made on Anahuac Well

Houston.—Humble Oil & Refining Company's Clark 1, west offset to the discovery well for the Anahuac area, Chambers County, was reaming down to make a drill stem test at the close of the week after encountering sand and shale showing oil from 7034 to 7117 feet. The well is reported to be running approximately 40 feet lower than the discovery well. The well is located 466 feet each way out of the southeast corner of H. & T. C. Survey, Section 57.

South of Anahuac and in the area of Smith's Point, one of the major oil companies is reported to have taken 4374 acres in the area. The area has been worked with torsion balance and gravity meters. Six miles north of this play another interesting play is in progress.

Texas Gulf Coast Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBERS HILL—		
Mills Bennett, Wilburn 7-B (wo)..	218	5210
Texas Gulf, Fitzgerald 2	550	4565
BOLING—		
Midland Oil Co., Coulter 1	*	4079
DAMON MOUND—		
Henry Wisdom Damon, Fee A-2..	5	1509
DANBURY—		
Shell, Haury 3	*	7495
DICKINSON—		
Humble	648	9140
HANKAMER—		
Gulf, B. Hankamer 1	480	4320
HULL—		
Gulf, Phoenix 107	450	3510
LIVINGSTON—		
Refugio Oil Corp., Dick Falling 5	*	4285
MANVEL—		
Sterling O&R Corp., W. A. Gamble 1	*	6005
Texas Co., Houston Oil Field Assoc. 9	195	4011
MYKAWA—		
West Prod. Co., Forbes 1 (wo)...	195	4565
C. Holmes 1 (wo)	190	4561
SHEPPARDS MOTT—		
Cockburn Oil Corp., Hawkins 7....	*	4811
TOMBALL—		
Humble, C. H. Muller 1	550	5554
Ried 8	510	5550
ANGELINA COUNTY—		
Koch & Duffey, L. W. Alberry 1, J. A. Prado sur	*	2020
AUSTIN COUNTY—		
Arkansas Fuel Co., Otto Huedner 1, R. Stolze sur	*	4005
BRAZORIA COUNTY—		
C. E. Holt, Griffith 1 (wo), J. B. Bailey sur	*	6010
LIBERTY COUNTY—		
Jack Frazier, Buffon 1, (wo), J. Robeson sur	*	7380

*Failures; †Junked; ¶Million cu. ft. gas.

Tomball Field Extended 1000 Feet to Southwest

Houston.—The Tomball field of Harris County was extended 1000 feet southwest when Humble Oil & Refining Company completed its C. H. Muller 1, for 550 barrels daily from 5554 feet.

The well is located 1744 feet from the northwest corner and midway between the north and south line of 128-acre tract in T. A. Duclose Survey. The well is 1000 feet southwest of Humble Oil & Refining Company's Faris 1, a gas well.

Cores Being Taken on South Houston Well

Houston.—Johnson and Stanolind Oil & Gas Company's fee land 1, in the South Houston area, Harris County, was coring in shale at 4781 feet at the end of the week. The operators were reported in the Miocene at 4460 feet, however, this was not confirmed. There have been several rumors that the well has had showing of oil.

Superior to Drill on University Block

Lake Charles, La.—On the University block at Baton Rouge and in East Baton Rouge Parish, Superior Oil Producing Company has made location for Duplantier-Community 1, 1500 feet west and 330 feet south of the northeast corner of Section 65 in Section 65-7s-1w. This test will be drilled beyond 9000 feet.

In St. John the Baptist Parish, Shell Petroleum Corporation took the Lutcher Moore 70,000 acres on exploration option. The company continues leasing in the Atchafalaya basin.

In Tangipahoa Parish, Gulf Refining Company leased 9731 acres for geophysical work.

Failure in St. Mary Parish

Lake Charles, La.—Edwards Drilling Company's Chetemaches 1, near Charenton, Section 34-13s-9e, St. Mary Parish, was abandoned during the past week at 8501 feet. The operators had several indications of oil from 7710 to 8501 feet. Sun Oil Company is reported to be dealing for the Belle Isle which consists of over 30,000 acres in St. Mary Parish.

Three Wells Cemented On Gillis Pool

Lake Charles, La.—Union Sulphur Company has three wells in the Gillis field, Calcasieu Parish, waiting on cement to set. Fohs Oil Company's Castle 2, is being worked over.

Union Sulphur Company's Barbe 3, 500 feet north of the discovery well, Section 11-9s-8w, topped the oil sand and set six and five eighths-inch casing at 6748 feet with the bottom of the hole at 6756 feet.

Same operator's Mayo Reeves 1, Section 12-9s-8w, topped the sand at 6741 feet and set six and five eighths-inch casing at that depth. Bottom of the hole is 6751 feet.

Mayo Reeves 2, 600 feet north of State 2 and 600 feet southeast of Mayo Reeves 1, set six and five eighths-inch casing at 6717 feet where the oil sand was topped. Bottom of the hole is 6727 feet.

Fohs Oil Company's Castle 2, which was completed for 50 barrels of gasoline daily and 2,800,000 cubic feet of gas from 7041 feet, was killed and the tubing was pulled to shut off the top part of the screen. Oil sand was topped in this test at 7010 feet.

It is reported that Fohs Oil Company leased 80 acres in 10 lots to the southwest of Gillis in the Triplett subdivision. In this same parish and to the west of Gillis and Seguin operator has 3500 acres. Humble Oil & Refining Company is leasing open acreage to the west of Superior Oil & Producing Company block in Calcasieu Parish and Jefferson Davis Parish. Some of the acreage is for exploration work. In Beauregard Parish, Magnolia Petroleum Company has taken 1500 acres north of DeQuincey.

Plug Being Drilled After Test in Roanoke Well

Lake Charles, La.—Shell Petroleum Corporation's Kratzer 3, 1500 feet south of the discovery well for the Roanoke field, Section 12-9s-4w, was drilling plugs at the end of the week after setting 8⅝-inch casing at 7584 feet. On a drill stem test from 7581 to 7597 feet the well showed 24 stands of 37.5 gravity oil. The test was made through a quarter-inch choke on top and bottom. The pressure was 40 pounds.

The operators have made location for Kratzer 1-B, 660 feet north and 330 feet east of the southwest corner of the southeast quarter of Section 1-9s-4w. The same operator's Jarnigan 1, 660 feet due east of the discovery well was reaming from 7919 to 8084 feet.

Bosco Has *Influenced Coastal Development During* First Year

CHARLES LEYENDECKER
Staff Representative

THE Bosco field of Acadia and St. Landry Parishes has established itself as an outstanding oil field in the Louisiana Gulf Coast on its first birthday. The field is one year old today and has been so developed that it ranks along with the Iowa field of Calcasieu and Jefferson Davis Parishes in size. It compares with the latter field in number of productive acres, and also has become the largest producing field in Louisiana.

The Bosco field is located approximately 10 miles northwest of Lafayette and approximately three miles northeast of Bosco. In Acadia Parish the field covers the east half of Section 33, southeast corner of Section 28 and the north half of Section 34, Township 8 south, Range 3 east. In St. Landry Parish the lower part of Section 27, southwest corner of Section 26 and the northern part of Section 35, Township 8 south, Range 3 east are included. The area is rather level with an elevation of approximately 52 feet above sea level. The slope is in the easterly direction.

The honors for the discovery of Bosco goes to the Pure Oil Company. In 1929, the company worked the area with geophysical instruments and located the structure. The Pure Oil Company leased a block of approximately 6000 acres. Due to expiration dates on some of the leases the Pure Oil Company entered into a joint agreement with Superior Oil Producing Company (subsidiary of Superior Oil Company of California). The latter company drilled P. O. Hernandez 1, which opened the field. Since the discovery well Superior Oil Producing Company with the cooperation and approval of the Pure Oil Company is developing and operating the properties for the joint account.

The discovery well was spudded on November 28, 1933, and was drilled to 8916 feet. Seven-inch casing was set at 8830 feet and the casing was perforated from 7845 to 7850 feet with eight holes, six inches apart. A test was made 15 feet above the sands, after perforation, and the well came in for 700 barrels of 38.1 gravity oil daily through a twelve sixty-fourths-inch choke on top and a quarter-inch choke on bottom April 29, 1934. The cement plugs, since the well has been completed, have not been drilled. While drilling to 8916 feet the operators encountered five sands that showed oil. To date three of the sands have been tested and have proved commercial, the two deeper sands are yet untested.

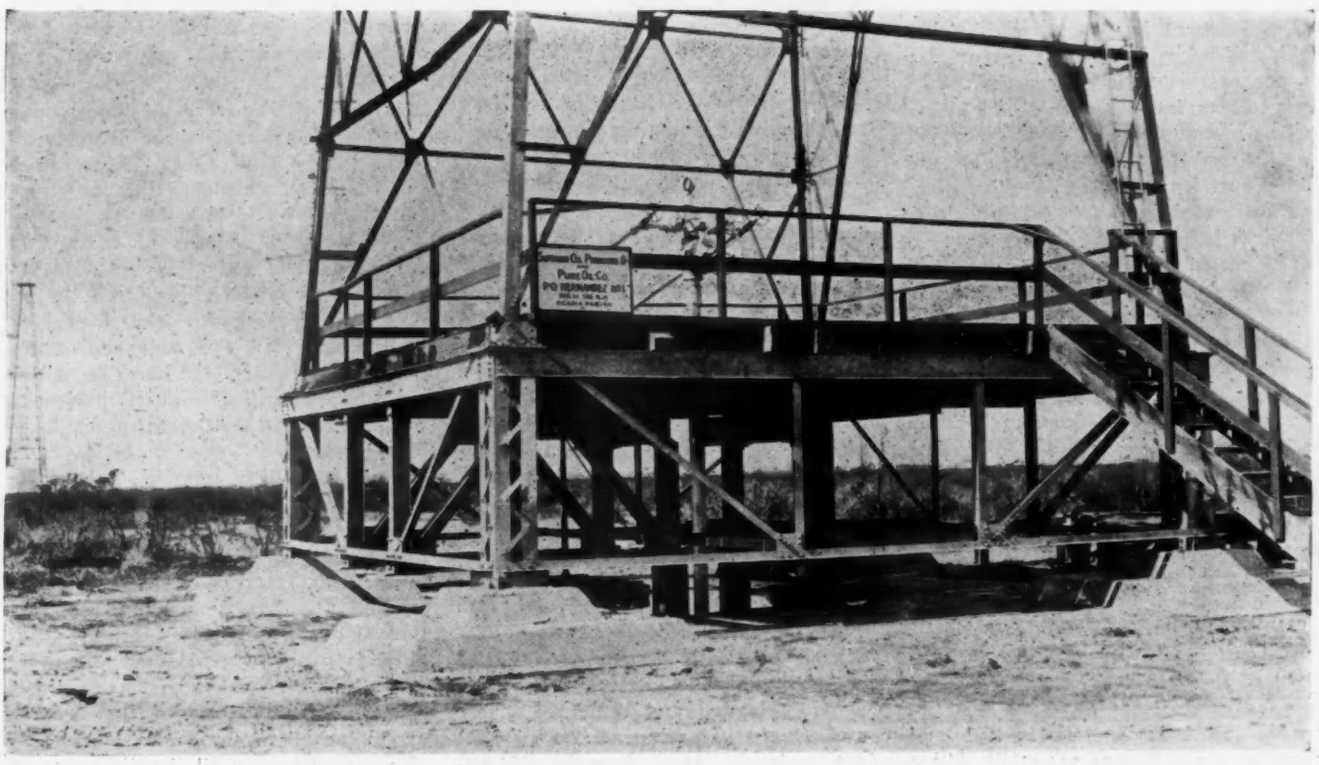
To the south of the discovery well, Oswego Oil Company (subsidiary of Standard Oil Company of Kansas) controls 40 acres. The company has completed one well to date and now are drilling on the second test. Outside of Oswego Oil Company's 40 acres, Superior Oil Producing Company and the Pure Oil Company control the entire field.

The field has been the scene of some rapid drilling records. Upon completion of the discovery well, the joint operators made six exploratory tests in all directions from the discovery well, ranging from half mile to 1¾ miles away. After completing these tests eight additional locations were made and with the completion of these wells it established the field as of major importance.

At present the field is fairly well defined on three sides, the east, north and west. The south portion is still open for possible extensions.

Producing Horizons

The three producing sands are the Discorbis, Heterostegina and Marginulina. The sands are referred to as the



Discovery well at Boscoe

Hernandez sand, Mire sand and Richard sand, so named after the tracts on which these sands were proved productive. The sands are encountered around 7830 feet, 8060 feet and from 8600 to 8735 feet respectively. A gas sand is found around 8425 feet. One well drilled to 10,002 feet and topped the Vicksburg at 9700 feet. This test is the deepest test drilled on the Gulf Coast.

Production comes from the Discorbis at the top of the Oligocene. A water level is found around 7870 feet. About 60 feet below the top of the Heterostegina production is found. Oil is found in the Marginulina horizon about 250 feet below the top of the formation. There is one sand approximately 450 feet below the top of the Marginulina, but it is untested. Another sand approximately 50 feet below the last mentioned depth also is untested.

Production from the Discorbis is more prominent to the east and north of the discovery well. Heterostegina production is found more to the west and little south of the first producer and the Marginulina sands are found productive to the southeast and southward from the discovery well.

There are several faults along the south side of the field which have not been fully defined to date. With the drilling of wells now located in that area, more information should be obtainable as to the amount of future drilling to take place in this area. Most of the edge producing Discorbis wells are making a small percentage of water.

Development has been rapid in the field, and when first development was in progress it took an average of 48 days to complete a well, but now inside wells are completed in 25 days, which is a record for fast drilling on the Gulf Coast for such depths. The average estimated cost for drilling these 8000-foot holes is around $80,000.

The wells are being drilled to 8000 and 9000 feet with less effort and expense and in a shorter period of time than it has been required to drill three or four 9000-foot producing districts in other parts of the world. The upper formations are predominately sands and soft shales, and remarkably fast drilling records have been made in several of the deep tests in the field. These soft formations above 7000 feet are encouraging factors in the extensive search for evidences of deep seated salt domes.

There are now a total of 49 wells completed in the Bosco field. Thirty-eight of the completions have resulted in good producers, eight have been recorded as failures, one junked and abandoned and two as gas wells. There are 16 wells producing from the Discorbis formation, 20 from the Marginulina and two from the Heterostegina. Seven wells have been abandoned in the Marginulina sands and one in the Vicksburg formation. The test that was junked and abandoned was plugged in the Discorbis. The two gas wells are producing from the Heterostegina and Marginulina formation. All these wells are owned by Superior Oil Producing Company and the Pure Oil Company, except Oswego Oil Company's Mouton 1, which was completed for a producer in the Marginulina formation. At present there are 11 wells drilling and nine locations in the field.

Of the above 49 completions, there are 30 in Acadia Parish and only 19 in St. Landry Parish. Of the 30 completions in Acadia Parish, 23 are producing wells, five are failures and two gas wells. In St. Landry Parish, there are 15 producers with only four failures. The estimated number of productive acres in Acadia Parish is 750 acres and in St. Landry Parish 650 acres, making a total of 1400 productive acres in the two parishes with the southern adge of the field yet undefined.

The field since its discovery to the end of 1934, produced an estimated 1,060,000 barrels. For the first three months of 1935, the field produced an estimated 362,600 barrels, 417,950 barrels and 540,450 barrels respectively, making a total accumulative production of approximately 2,481,000 barrels. The field for the first 29 days of April, is estimated to have produced 580,000 barrels bringing the total accumulative production of the field for one year to 3,061,000 barrels. The daily recovery for the field is estimated at 20,000 barrels.

Drilling Equipment

Superior Oil Producing Company introduced the heavy type of California rotary equipment at Bosco and it has been watched with great interest. This equipment has proved successful in drilling the deep holes in the field in record time and is becoming more prominent in the Gulf Coast district.

The development program at Bosco is rather uniform and is in accordance with a plan approved by the Administrator of the Oil Code. The casing practice in general use throughout the field is to set a joint of 18⅝-inch casing as a surface conductor. A 17½-inch hole is drilled to 1250 or 1300 feet, where 13⅜-inch casing is set. On top of the producing sand seven-inch casing is landed and cemented. The total weight of casing set on an 8000 foot hole is approximately 454,360 pounds and in making the three settings over 850 sacks of cement are used.

When drilling to the producing sand, and after reaching the producing formation, cores are taken. The cores are taken from the top of the Discorbis on down. An electrical logging device is run before setting the final string of casing and from the electrical device and the drillers' log and cores the operators have complete information on geological column and know just where to set the final string of casing.

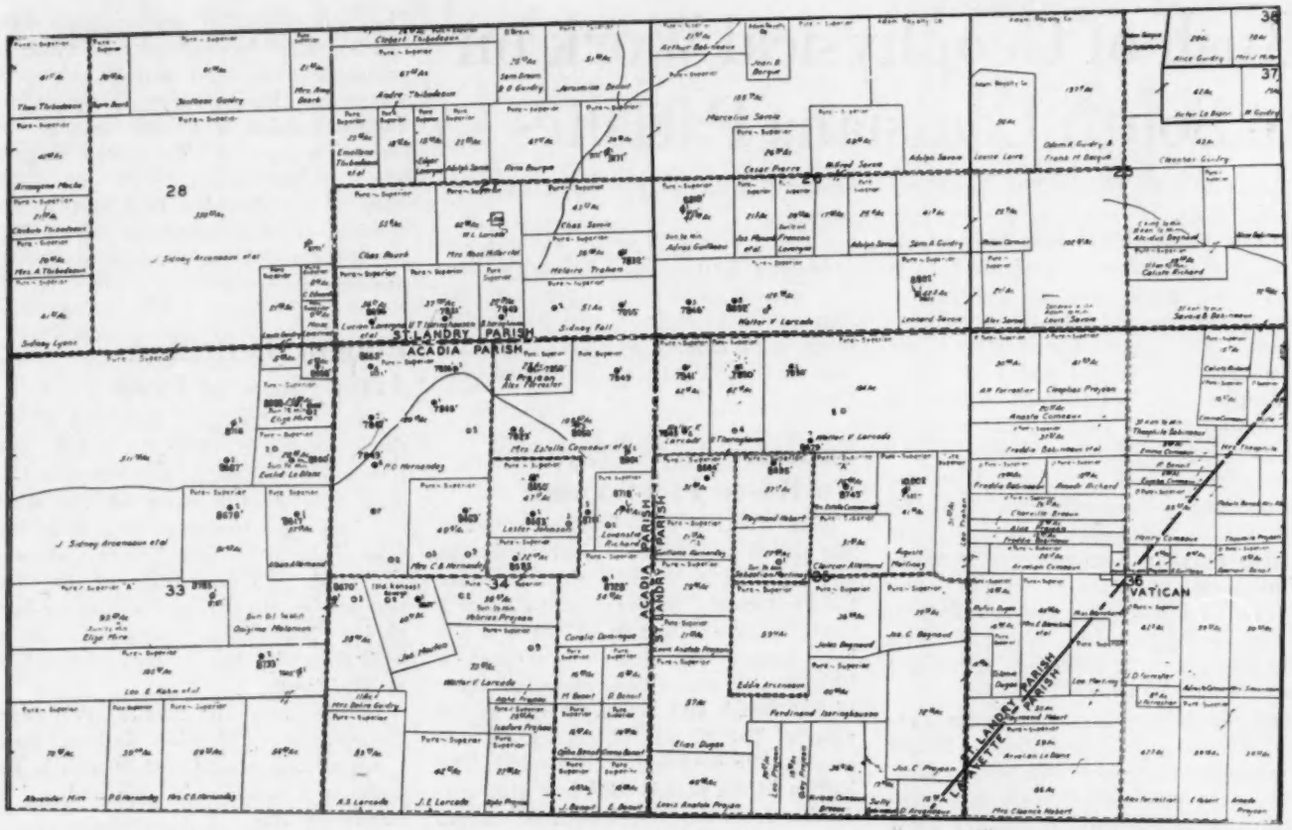
Superior Oil Producing Company uses five 125-horsepower boilers with 350-pound steam working pressure, with two 10 x 5 x 10 duplex, feedwater pumps. The pumps have 1000-pound working pressure. Another pump of this type is used for circulating cool water.

The drawworks are all roller bearing and have three speeds. The drum shaft is extended on the rotary drive side to accommodate a 36-inch hydromatic brake. The pump, which was mentioned above for circulating cool water, is connected with this large brake. All the rigs are equipped with auxiliary drawworks for emergency use. The auxiliary drawworks have four speeds. A 14 x 14 roller bearing, two-cylinder, steam-heated drilling engine is part of the rig equipment. The engine weighs over 27,000 pounds.

The rotary table is fully enclosed and is 27½ inches in size. A 54-inch Kelly is used. The largest, heavy-duty swivel on the market is being used in the Bosco field. It weighs over 7100 pounds and has a safe working load of 300 tons at 150 revolutions per minute.

With the discovery of Bosco one year ago, it has revised the geophysical work in the Gulf Coast. Heretofore the operators were shooting for structures at 5000 and 7000 feet, now they are shooting at depths of 10,000 feet or more. Not only has the field revised the geophysical work but it has prompted leasing for the Louisiana Gulf Coast. In the past year there has been over 3,500,000 acres leased in the Louisiana Gulf Coast, making a total of over 6,000,000 acres under lease in the region.

Since the discovery of Bosco the Louisiana Coastal region is experiencing a new type of development that has increased greatly the oil reserves of the district. Improved drilling methods at Bosco and more effective application of geophysics have been the principal factors in the deep development campaign that quickly has changed this coastal belt into one of the deepest producing districts in the world. It was the custom, until the discovery of Bosco, to regard the Louisiana Gulf



The Bosco field, showing the field as it appears on its first birthday. The completions, dry holes and locations, also the depths showing what formation the wells were completed in. (Map courtesy of Gulf Coast Engineering Company).

Coast as comparatively shallow producing district. Surface indications, gas seeps and paraffin dirt were the principal means of discovery of the shallow salt domes. The search for new fields has been extended on a large scale to deeper formations, and production from depths of more than 10,000 feet is a distinct possibility in the next few years. Since the discovery of Bosco there have been more wells drilled below 9000 feet than ever before witnessed in the Gulf Coast region.

Two 14 x 7½ x 18 slush pumps, which weigh 17,200 pounds each and have a 3000-pound test, alloy steel, water end, are employed.

Crown blocks weigh 10,000 pounds and have a safe working load of 350 tons. A five 42-inch steel sheaves traveling block is in use in the field.

For handling the mud the operators have installed three shaker type mud machines. The mud flows through all three of the shakers.

Regular 136-foot derricks with 30-foot base and with sub-structures mounted on concrete foundations are commonly used in the field.

For water supply in the field the operators have a water well, which was once used for irrigation in the rice fields. This well was purchased to supply the field with water. The well produces approximately 2500 gallons. of water per minute. Along with this water well, the operators have constructed a reservoir for fresh water which is used in case of emergency.

The gravity of Bosco oil is around 38 degrees. The oil is being carried by Pure-Van Pipe Line Company, which constructed a six- and eight-inch line from the field to the Gueydan field, a distance of about 30 miles, to where it connects with the company's eight-inch line extending from Gueydan to a terminal on the Mermentau River. This pipe line company purchases all Bosco production and transports it through this line to the water front and thence by water to The Pure Oil Company's refinery at Smith's Bluff. Superior Oil Producing Company and The Pure Oil Company have a large tank farm in the field.

Wildcat Near Lafitte Cores Saturated Sand

Lake Charles, La.—The Texas Company's Bayou St. Denis 1, six miles southeast of Lafitte, Jefferson Parish, was preparing to go in the hole for another six-foot core at 9541 feet at the close of the week after showing oil on two cores taken previously.

A core from 9530 to 9533 feet showed oil. After attempting to take two other cores at this depth the operators finally took one from 9536 to 9542 feet which also showed oil. If the six-foot core shows oil a drill stem test will be made.

Second Well Showing in Lake Hermitage Area

Lake Charles, La.—Humble Oil & Refining Company's La Fourche Basin Levee District 3, Lake Hermitage, Plaquemines Parish, was being completed at the close of the week after making a 12-minute drill stem test from 3160 to 3193 feet and showing 750 feet of pipe line oil and 150 feet of drilling mud. The test was made through three eighths-inch chokes. The operators drilled to 3194 feet in sand showing oil and a core from 3172 to 3176 feet showed oil.

Acadia Wildcat Staked by Continental Oil Company

Lake Charles, La.—A new wildcat location was announced by Continental Oil Company on its 6000-acre block in Acadia Parish during the past week. The company will drill Theogen Ortigo 1, 1000 feet south and 500 feet east of the northwest corner of Section 28-7s-2w. At the end of the week the operators were moving in material. It was reported the previous week that Continental Oil Company purchased the waterways through its block.

Rush of Geophysical Work on In South Louisiana Parishes

Lake Charles, La.—The Louisiana Gulf Coast is now witnessing the greatest stride in development and geophysical exploratory work in its history. Last week nine new geophysical crews were moved into the area. Amerada Petroleum Corporation and Stanolind Oil & Gas Company put a reflection crew in Calcasieu Parish and Stanolind Oil & Gas Company put a seismograph reflection crew in the same area. Shell Petroleum Corporation brought in a reflection crew and put it in Calcasieu Parish and the Union Sulphur Company put a reflection crew in Rapides Parish. The Texas Company also put a reflection crew in this parish. Gulf Refining Company sent a reflection crew into St. Bernard Parish. Pure Oil Company placed a crew in Avoyelles Parish. In Jefferson Davis Parish, Strake Petroleum Company placed a reflection crew and Shell Petroleum Corporation moved a torsion balance crew to Lafayette.

Sun Oil Company is preparing to move a crew into the Louisiana Gulf Coast. Superior Oil Producing Company is preparing to bring in three more crews to the area.

Shell Petroleum Corporation is preparing to launch exploration development in the Atchafalaya flood basin and in the other parishes along this basin where the operators have been taking acreage for the past two months on exploration options. The operators have over 700,000 acres for exploratory work in this area and a large number of geophysical crews will be brought in to do the work on their leases.

There are now 39 crews working the Louisiana Gulf Coast. Calcasieu Parish has the largest play for exploration work. Outside of this parish the work is in general scattered throughout the 15,000,000-acre Louisiana Gulf Coast.

Superior Adds Producer To Bosco Field Total

Lake Charles, La.—Another producer was added to the Bosco field of Acadia and St. Landry Parish when Superior Oil Producing Company's Iseringhauser 1 came in for 284 barrels on the first 20-hour gauge. The flow was through a 10/64-inch choke with a tubing pressure of 500 pounds and casing pressure at 850 pounds. The oil was 37 gravity, cut five percent with mud and drilling water. The bottom of the hole is 8687 feet with production from the Marginulina formation. The well is located approximately 1000 feet south of Iseringhauser 1, which is producing from the Discorbis formation.

Superior Oil Producing Company has finished looping a six-inch line to the Duson loading rack. The double six-inch line ties into the eight-inch line which runs to the Gueydan field and to the terminal on the Mermantau River. The operators added one booster station to this line last week.

Plug to Be Drilled After Show at Iowa

Lake Charles, La.—Shell Petroleum Corporation's Heyd 15, Iowa field, Jefferson Davis Parish, was preparing to drill plug at the close of the week after taking a 10-minute drill stem test from 4420 to 4457 feet. The test showed 15 stands and one single of oil. The test was made through a quarter-inch choke. Seven-inch casing was set at 4428 feet with the bottom of the hole at 4457 feet.

In the area of Strake Petroleum Corporation's Calcasieu National Bank 1, which was abandoned Magnolia Petroleum Company is reported to be taking acreage.

South Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSCO—		
Superior, Iserinhauser 4	336	8687
CAILLOU ISLAND—		
Texas Co., State Calliou Island 17	2085	4033
EAST HACKBERRY—		
Gulf, Irwin 17	400	7325
IOWA—		
Shell, Heyd 14	285	6679
LAKE WASHINGTON—		
Humble, Cockrell Moran 23	*	4215
LEESVILLE—		
Lincoln Oil Co., State 3 (wo)	700	3878
NEW IBERIA—		
Helis Oil Co., Bernard 3	700	4737
WELSH—		
Yount-Lee, W. O. L. & D. Co. 2	15	1348
ST. MARY PARISH—		
Edwards Drilling Co., Chetemaches 1, sec 34-13s-9e	†	8501

*Failures; †Junked; ¶Million cu. ft. gas.

Deeper Producing Level For New Iberia Field

Lake Charles, La.—A new producing depth was discovered in the New Iberia field of Iberia Parish during the past week when Helis Oil Company's Bernard 3 was completed for 700 barrels per day from 4737 feet, 900 feet deeper than Y. D. Spell's Bernard 1, which was completed at 3828 feet on July 4, 1934.

A sand showing oil was encountered at 4650 feet and the operators set seven-inch casing at 4645 feet. Eighty feet of 70-mesh screen was set and 2½-inch tubing run and the well came in through a quarter-inch choke with a tubing pressure of 600 pounds. The oil was 24.5 gravity at 74°F. On a three sixteenths-inch choke the well made 360 barrels per day with a tubing pressure of 600 pounds and casing pressure of 1000 pounds. The choke was changed to three eighths-inch and the well made approximately 760 barrels and on a three quarters-inch choke on a three-hour gauge it made 1600 barrels. The operators had over 80 feet of saturated sand in this well.

The well is located 300 feet north and 100 feet east of Y. D. Spell's Bernard 1, in section 54-1s-7w. It is the second well to be completed as a commercial producer since Y. D. Spell's well came in for the discovery of the new sand on this piercement type dome.

At present there is one well drilling below 5012 feet and another standing after penetrating the salt at 3816 feet.

In Iberville Parish, Humble Oil & Refining Company is taking acreage at Remah. This prospect was first worked by Barnsdall Oil Company, which retained a small amount of acreage after dropping the greater portion. Humble Oil & Refining Company immediately took the acreage and worked it with geophysical instruments. Both companies are reported to have found a "high" in the area.

Shreveport, La.—Announcement was made last week that the Bayou State Oil Corporation's refinery at Hosston, north Caddo Parish, has added equipment for the canning of motor oil in one-gallon and five-gallon lots which will begin during the coming week. The capacity will be 25,000 cans daily, but it will be operated at first at only about half capacity. Besides blending their own oil, the company will blend for several smaller companies. The refinery is running at present 850 barrels daily.

Caddo Parish Most Active in North Louisiana

Shreveport, La.—Caddo Parish, where the first commercial production in North Louisiana was discovered 30 years ago, is the most active parish in North Louisiana. Practically all acreage outside of incorporated municipalities is under mineral lease, this being especially true of the north end of the parish where are located the Houston and Caddo oil fields, the latter embracing the old Pine Island field that is the most active in North Louisiana, and the Rodessa and Blanchard gas fields.

Successful use of acid in the chalk rock of the Caddo oil fields, the finding that the oolitic lime horizon of the Glenn Rose in the Rodessa gas field is at least 410 feet thick with possible production throughout, and the success of small gassers in the Nacatosh at 900 feet in Blanchard as well as discovery of Nacatosh oil production in the old Trees City part of the Pine Island field —all have been factors in causing leasing and drilling activity.

Latest to block in North Caddo is J. R. Murray of Shreveport who is assembling 3000 acres for an early 2200-foot test. The block centers in Section 11-19n-16w, south of Caddo production.

George Koury of Camden, Arkansas, is reblocking acreage in the old abandoned Mount Holly field, Ouachita County, Arkansas, 12 miles southwest of Camden where several commercial wells were complete early in 1929. The field was abandoned two years later when the wells dropped in yield and the bottom fell out of the oil price structure. The block which will approximate 3000 acres centers around where the old producers were located in Section 25-15-18. They were completed at the 3000-3100-foot level.

Small Lease Trades In Shreveport Area

Shreveport, La.—Four new locations were added to North Louisiana drilling reports last week. Two were in the northeast part of the old Pine Island field, Caddo Parish. Roy C. Golston has spudded Thigpen-Herold 1, NW SW 15-20n-15w, and is drilling below 2100 feet. The Leonard Company has spudded Kuhn 1, C N½ NW SW 7-20n-15w.

In the Naborton field, De Soto Parish, W. T. Coleman who has recently completed two small Nacatosh gassers at 800-900 feet in a field that has heretofore produced mainly from the Tokio at 2700-2800 feet, is rigging Walker 1, SE SE SW 18-12n-11w.

In Morehouse Parish, C. I. Bacon and associates of Bastrop, have derrick up for Crossett Lumber Company 2, SE SW 36-23n-6e, half a mile west of a previous test on the same lease drilled by Zeigen & Bacon. The present test is reported to contemplate a 4200-foot hole.

Premier Investment Company of Fort Worth, Texas, which has a number of producing wells in the shallow Bellevue field, Bossier Parish, recently acquired 120 acres in Sections 22 and 23-19n-11w, in that field from Spartan Refining Company and Bellevue Corporation for $2000 cash. It was in this part of the field that lower Cretaceous gas and some oil production was obtained.

United Gas Public Service Company continues to add to its holdings in the Sligo field, Bossier Parish, last week paying H. L. Skannal and J. H. Fullilove $1600 cash for a 160-acre lease, NE 13-17n-12w.

Shreveport, La.—Only two completions were recorded in North Louisiana last week, both being completed in proven fields and both making considerable salt water. One was completed as a 15-barrel pumper in the northeast part of the old Pine Island field, and is making 25 barrels of salt water daily along with the oil. The other, in the Urania field, La Salle Parish, is pumping 30 barrels of oil and 700 barrels of salt water daily.

Shreveport, La. — Twenty-five drilling permits were authorized last week by the minerals division of the Louisiana Conservation Commission. Nine of the permits were for North Louisiana divided among the following parishes: Caddo, seven; De Soto, one; and Sabine, one. The sixteen in south Louisiana were divided as follows: Acadia, two; Calcasieu, one; Cameron, one; East Baton Rouge, one; Evangeline, one; Iberia, four; Jefferson Davis, one; La Fourche, two; Plaquemines, one; and Terrebonne, two.

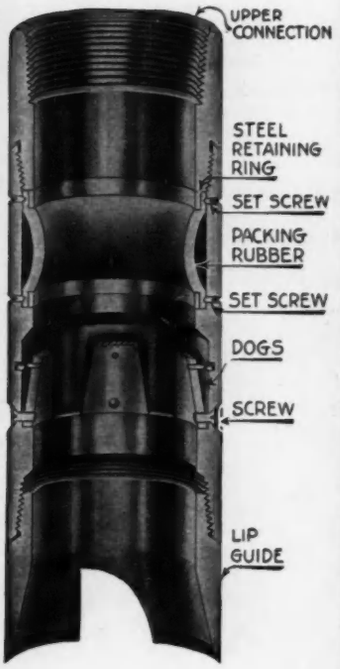
North Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Pine Island)—		
Texas Co., School Fee 3, 16-20n-15w	15	2230
LA SALLE PARISH (Urania)—		
Monroe Prod. Co., Winberry 1, ne se nw 18-10n-2e	30	1519

*Failures; †Junked; ¶Million cu. ft. gas

Don't Wait

until the fish has time to get stuck, resulting in a long-drawn-out, costly fishing job and possibly loss of the entire investment in the well.



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GRAY TOOL COMPANY
Houston, Texas.

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Duluth-Arkansas Oil Co., H. E. Beck 4, se se sw 34-15-26	25	2941
UNION COUNTY (Rainbow City)—		
J. E. Crosbie, Inc., W. E. Gregory 1, nw ne 15-17-14	*	3503
Skelly Oil Co., Kelly 1, se se 9-17-14.	*	3384

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JENSEN JACKS

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Application of the relief well process of drowning the gas flow of a junked gasser with water flooding appears to have been successful in the attempt of Humble Oil & Refining Company to regain control of J. L. Coates 1, C NW NW 10-24s-36e, situated 1¾ miles northwest of nearest completed oil well in the Cooper field, after being virtually out of control since early last October at 3355 feet. Coates 1-A, relief well spotted about 400 feet west of the junked gasser, was drilled to 3394 feet, with 6⅝-inch pipe cemented at 2973 feet, and used to pump from 200 to 300 barrels of water per hour into the hard lime horizon to kill the heavy rock pressure in Coates 1. Parted casing and craters made it impossible to recover lost drill pipe in the original test, or to properly abandon same. The flooding method reduced the gas volume in the junked well sufficiently to permit the recovery of lost drill pipe, and work is now in progress towards conditioning the original hole to deepen to the oil horizon, expected near the 3500-foot level.

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GLACIER COUNTY (Cut Bank field)—		
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Texas Co., Hinkle 6, ne ne 2-34n-6w	50	2812
Consolidated Gas Co., Tribal 3, Lot 7, 34-35n-6w	90	2980
TOOLE COUNTY—		
Ward-Cruise, Thompson 1, nw se 28-35n-3w	25	1775
NEW MEXICO		
EDDY COUNTY—		
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LEA COUNTY (North Jal Field)—		
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Manufactured Only By

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WILLIAMSPORT, PA.

inch tubing, then increased to 237 barrels hourly after using 6000 gallons of chemicals. The gas volume was estimated at 7,500,000 feet daily.

Base of salt, fairly accurate marker, logged at 2280 feet, or 1314 feet above sea level, by Amerada Petroleum Corporation's State 1-F, C SW SW 36-19s-36e, second test for its Monument structure discovery block, indicated about 11 feet lower structural position as compared to the discovery well, which is shut in pending completion of The Texas Pipe Line Company's six-inch line extension from the Eunice field. This second test had proceeded to the 3000-foot level late last week, passing up a number of gas zones in the broken lime formation.

New Mexico State Leases Sold

Santa Fe, N. M.—Sale of state oil and gas land in southeastern New Mexico netted $29,411.88 in bonuses, Frank Vesely, commissioner of public lands, announced here this week. The sale was held at his office April 10.

Only one of the 25 tracts offered for sale received no bid. Highest bid offered for a single tract was made by Phillips Petroleum Company in paying a bonus of $6766.38 for Tract 19, consisting of 3783.33 acres in the Caprock area, Lea County. The majority of acreage offered was on a northwest trend from the Hobbs field through Lea County and into Chaves County.

Lance Creek Wild Well Brought Under Control

Lusk, Wyo.—Ohio Oil Company's Agnes Rohlf 2, NE SE 32-36N-65W, gusher in Lance Creek field, which blew connections and was running wild two weeks ago, has been repaired and is producing 3600 barrels of crude daily, filling storage. The well ripped out casing seam in the 7⅝-inch production string at 173 feet and broke bradenhead between the seven-inch and the 12½-inch strings.

Pipe was unscrewed below burst joint and new joints run and bradenhead installed after the well was mudded in. The well is the first completion in the third bench of the Sundance sand in the Lance Creek field, Niobara County, eastern Wyoming, and has stimulated drilling in that field. Total depth of the well is 3901 feet.

Ohio Oil Company is drilling below 1000 feet in Elizabeth Lamb 6, SE SE 36-36N-65W, a 40-acre location south of the Rohlf well. This test will be carried through the three benches of the Sundance.

Ohio Oil Company, Argo Oil Company and Continental Oil Company hold the principal acreage within the Sundance contour on the west end of the Lance Creek field, where according to the three wells so far completed in the various benches of the Sundance there are 12 drillable locations in spacing one well to a 40-acre tract. Large production results of Ohio Oil Company's completion in the third bench has caused Argo and Continental to ask for a revision of the unit plan of development submitted to the Interior Department a year ago to include two wells to the 40. Locations by Continental and Argo are being held up pending decision on well spacing in the field.

Result of Ohio Oil Company's strike is expected to again stimulate interest in the east end of the field which has never been thoroughly tested. Jebel Syndicate (J. B. Irwin of Cheyenne and others) hold an important block of acreage in East Lance Creek and are negotiating for the drilling of a deep test in this sector.

Cut Bank Continues Field Activity Increase

Cut Bank, Mont.—Cut Bank field activity was more than tripled in the past four weeks when three new locations released last week brought the total of drilling wells in the Glacier County, Mont., field to 23. Two completions, one a flowing well, were made during the week.

Jerome Drumheller and others' Ward 1, Lot 1, Section 10-34n-6w, flowed 215 barrels initial from 2960-75 feet in the lower Cut Bank sand. Hole bottoms at 2940 feet in the Ellis. The well is the best completion to date in the 1935 drilling season.

Consolidated Gas Company's Tribal 3, Lot 7, Section 34-35n-6w, swabbed 90 barrels initial and is estimated good for 75 barrels daily on the pump. The well logged the producing horizon at 2960-75 feet in the lower Cut Bank sand, and stopped at 2980 feet in the Ellis lime.

The Montana Power Gas Company made an important location in Bonnet 1, CSE NW 4-32n-5w, which was spotted two miles north of The Texas Company's southern outpost well, State 1. The Texas Company released the other two locations: Emma Schlag 3, SWc NE SE 26-35n-6w, and Sherburne Merchantile Company Lease 1, CNW SW 10-34n-6w.

A near completion is The Texas Company's Hinkle 6, NE NE 2-34n-6w, which is drilling out plug with the 7-inch production string cemented at 2761 feet where well cored into the top of the lower Cut Bank and recovered good saturation.

Sheep Creek Wildcat Pumps 110 Barrels

Casper, Wyo.—The Mid-American Oil Company's Government 2, CNE SW 14-28N-92W, a wildcat on the Sheep Creek structure, Fremont County, central Wyoming, pumped 110 barrels initial this week, and then dropped off to an average of 60 barrels daily. Production was encountered in the Embar lime between 2175-2262 feet.

The company expects to drill a second well on the structure and is making application to the government for a Tensleep test. It also expects to complete at least three more wells in the Embar during 1935 and will treat the lime zone with acid.

The Sheep Creek structure is sharp dip anticlinal fold, paralleling and immediately adjacent to the granite outcrop on the south flank of the Sweetwater uplift. It is a small structure with less than a 1000 acre area within the lowest closing contour.

California Company this week started deepening Holst 1, NE SE SE 13-17N-77W, which developed 90 barrels daily production on the pump from the Muddy sand, 3140-75 feet, on the Quealy Dome structure, Albany County, south central Wyoming. The test encountered the production last December and produced until two 500 barrel storage tanks were filled. Operators are drilling at 3190 feet and will test the Dakota and Lakota and possibly the Sundance formation.

Craig, Colo.—Stanolind Oil & Gas Company announced a new location and the deepening of an old well in the Iles field, Moffat County, as it is finishing a third Iles well this week. Parkinson 28-X NE SW SW 22-4n-92W, is coring in the Sundance sand, its objective, at 3300 feet. The well had the top of the Dakota at 2768 feet and the Morrison at 3203 feet. The company will deepen Shaw S-D 4, NE NW NE 27-4n-92W, a few hundred feet into the Sundance from its present depth of 3426 feet where it was completed in 1928 for 300 barrels. Shaw S-D 16, SE NW NW 27-4n-92w, is the new Iles location.

Fifteen Buttonwillow Gas Wells Are Flowing

Los Angeles.—In order to make up the deficiency in gas production at the Kettleman Hills field, occasioned by the order from Secretary Harold L. Ickes equalizing the gas-oil ratio on the large gas wells in that field, Milham Exploration Company has opened up 15 of its wells in the Buttonwillow gas field.

These wells, with the exception of an occasional bleeding off of the water to keep the well from being killed, have been shut in since completion in 1930 to 1932. There are approximately 25 of them capable of producing in their present condition, with a total field potential of 250,000,000 cubic feet of gas per day. It is estimated that about 15,000,000 cubic feet of gas will be needed to make up the Kettleman shortage.

The Buttonwillow gas field is located in Kern County, about 20 miles due north of the Midway-Sunset field, and was discovered in 1927. Milham's holdings, comprising about 2400 acres, take in most of the field, although General Petroleum Corporation has two shut-in wells on a small lease which they control.

California Gasoline Taxes Off in March

Los Angeles.—During March, refiners and marketers of California paid taxes on more gasoline than during any month since October, 1934, but the total fell below the same month in 1933 and 1934, according to figures released by the State Board of Equalization.

The board stated that $3,243,021 was collected on a total of 109,192,642 gallons reported, which showed a decline of 24.4 percent when compared with March of 1933. The loss when compared to March, last year, was 19 percent. This has reference to amount of money collected in taxes.

Standard Oil Company of California led with 14,212,669 gallons, net taxable, during March, while Associated Oil Company came second with 12,852,124 gallons.

Offshore Movement in California in Decline

Los Angeles.—Offshore shipments of California petroleum products from West Coast ports in March were off about 15,000 barrels a day compared to same month in 1934, according to preliminary figures compiled by the Oil Producers Agency of California, although the March tanker movement exceeded the daily average for the first quarter of 1935, due to increased business in the Pacific foreign area.

During March, Pacific foreign daily shipments averaged 132,777 barrels, while intercoastal shipments were 25,473 barrels a day. Atlantic foreign shipments showed a decline last month.

According to this preliminary survey, total of 5,540,465 barrels, all products, moved in tankers from California in March. Of this total, 3,048,729 barrels was fuel, 2,234,881 barrels was crude oil and 1,241,102 barrels was gasoline.

Mountain View Deep Test Disappointment

Los Angeles.—Hopes for obtaining production in the Mountain View field from zones below the Chanac and Santa Margarita, suffered a very decided setback when Union Oil Company's deep test, Kernco B-1 failed to show either oil or gas in an appreciable quantity.

Kernco B-1 is located in Section 9-30S-28e and the test was made with bottom at 7331 feet. An aggregate of about 12 feet of oil sand was penetrated in streaks from 7212 feet to bottom, none of the streaks exceeding six inches in thickness.

A formation tester was set at about 7212 feet and allowed to remain open for 20 minutes. Only one stand of gas-cut mud was recovered, the balance of the 585 feet of fluid that entered the tester being all water.

Old Kern Front Field Has 300-Barrel Well

Los Angeles.—Tangible evidence that the old Kern Front field, long an almost idle factor in California production, is still capable of holding its potential was brought to the attention of the oil industry last week when Geo. F. Getty, Inc., Grady 3, Section 26-28S-27E, was completed for an initial of 300 barrels per day of 15.8 gravity oil, cutting 2.0 percent sand and water.

Grady 3 was completed on April 17 from a depth of 2091 feet. Water is shut off with 10¾-inch casing at 1863 feet, and 250 feet of 8⅝-inch, all perforated liner, is landed on bottom.

The lack of demand for crude oil of this gravity has forced most of the operators in the shallow fields on the East Side district of San Joaquin Valley to keep their holdings well under curtailment during the past five years. Now, however, with fuel oil stocks and low gravity oil in storage back down to a point closely approaching normal, it is expected that the latter portion of the current year will witness a considerable amount of reconditioning work of wells in these fields, as well as the drilling of additional new wells.

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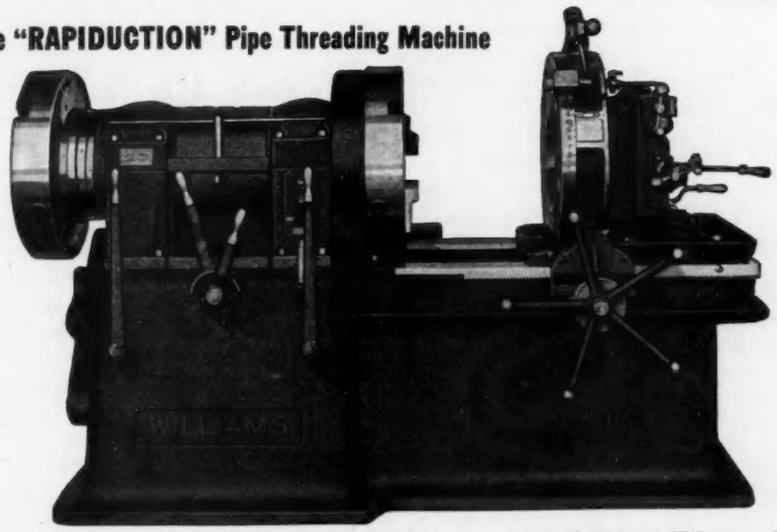

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Drill Wildcat Near Santa Barbara Field

Los Angeles.—The M. & L. Oil Company has announced intention of making another try for production from the northwest trend of the fault from which production is being obtained in the Santa Barbara Mesa field. Rig is now being built for its Domerick 1, in Section 29-4n-27w.

It is understood that geologists of the new project expect to encounter conditions similar to those existing in the Santa Barbara Mesa field, about one mile to the southeast, and that oil of an equivalent gravity, at a comparable depth, is to be the objective.

Numerous attempts previously made to develop commercial production in this immediate area have all met with failure: Channel Oil and Development Company drilled a well about one-half mile to the southeast to 6303 feet, Petroleum Exploration Company drilled P & M 1 to 3921 feet about one mile to the north, and Bankline Oil Company drilled Duncan 1 to 4099 feet about two miles to the west.

Small Gas Production Reported by Wildcat

Los Angeles.—The gas showings encountered in Standard Oil Company's Widgeon 1, located in the Kernell district about 20 miles northeast of the Lost Hills field, in Section 1-25S-23E, appear to have been overrated.

The total depth of Widgeon 1 is 2478 feet and 8⅝-inch casing is cemented at 2452 feet. Forty-six feet of all perforated, seven-inch liner was landed on bottom and 2½-inch tubing hung at 2461 feet.

On April 16 the well was placed on production test but 350,000 cubic feet of gas was the maximum recovery, although bean sizes were shifted several times and pressures ranging from 200 pounds to 600 pounds were allowed to build up.

Long Beach Field is Still Important Factor

Los Angeles.—A glance at the list of completions for the Los Angeles Basin district for the week ending April 20, shows very clearly that the Long Beach field is still one of the most important factors in California production.

In the period specified, 10 wells were placed on production, and six of the 10 were at Long Beach. Also, notwithstanding the age of this field and the number of wells previously drilled, five of the six new wells are "grass root" jobs.

The most outstanding completion for the Long Beach field was Great Western Oil Company's No. 1, which was completed on April 12, from a depth of 4415 feet for an initial production of 500 barrels per day of 25 gravity oil. Initial cut was 25 percent water, but this has now cleared up to 0.2 percent. Water is shut off at 4345 feet with 6⅝-inch casing and 105 feet of 4¾-inch liner, including 60 feet of perforations, is landed on bottom.

Faint Gas Showings In Riverside Wildcat

Los Angeles.—Persistent rumors of excellent showings penetrated in the old Albert Petroleum Company's Watt 2, located about a mile due north of Murietta Hot Springs, Riverside County, were disproven last week when it was ascertained that the well is being drilled ahead at 1225 feet in schist, streaks of quartz, and granite boulders.

A few faint gas showings comprise the extent of showings encountered in this well, which has been drilling spasmodically over a period of about five years.

This district is over 50 miles from the nearest oil production and sediments underneath which oil accumulations may be expected are limited to a series of narrow valleys. While admitting the possibility of commercial production in these valleys, most operators have given the area a wide berth, due largely to the lack of sedimentary coverng.

Made Only 416 Feet Seven Weeks Drilling

Los Angeles. — Considerable surprise was expressed by members of the California oil fraternity last Wednesday when Continental Oil Company announced that Pirie 1, located about 10 miles north of the Ventura Avenue field, in Section 12-4n-23w, was deep enough and that drilling operations had been suspended.

One of the greatest hindrances to deep drilling in this area is the excessive hardness of formations, even at relatively shallow depths. Pirie 1 was drilled to 1825 feet with cable tools, at which depth rotary equipment was installed. During the seven weeks that rotary was used, only 416 feet of additional hole was made, bringing the total depth to 2241 feet.

Exhaustive tests of showings at 1850 feet and at 1543 feet will be made in stages on the way back out of the hole. A string of 6⅝-inch liner, including 17 feet of perforations on bottom, has already been hung at 1693 feet and a packer placed at 1675 feet, and bailing will be started immediately.

On a production test with bottom at 1543 feet, this well made approximately 150 barrels per day of 19.4 gravity oil, cuts at that time varying from 20 to 27 percent.

Three New Locations in Mountain View Field

Los Angeles.—The interest of a majority of the San Joaquin Valley operators continues to center around activities in the Mountain View field.

In the seven-day period ending April 20, three new locations were staked within what is considered to be the proven limits of this field.

Mohawk Oil Company's Clendenen 4 is to be drilled 663 feet north and 333 feet west from the center of Section 30-30S-29E, Mohawk's Hood 6 will be located 331 feet south and 667 feet west from the east quarter corner of the same section, and Ohio Oil Company plans to drill Derby 2, 2320 feet south and 330 feet east from the northwest corner of Section 33-30S-29E.

Belridge Deep Test Lower on Structure

Los Angeles.—Standard Oil Company's deep test of the north Belridge field, Kern County, appears to be considerably lower, structurally, than other wells in the immediate neighborhood.

This well, McPhail 1-A, in Section 36-27S-20E, is now coring ahead at 8612 feet in coarse oil sand, the top of which was just penetrated a few feet back.

Continental Oil Company's Result 5, located in this same section, is producing from a total depth of 8395 feet, and the top of the oil sands were encountered at about 7850 feet.

California Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LONG BEACH—		
Tom Aitkins No. 1	100	4460
Bolsa Chica Oil Corp's Combs 3	120	3975
Bush Oil Co's Roan 1	145	4660
Great Western Oil Co's No. 1	550	4415
Pencole Pet. Co's Kilburn 1	80	4600
DOMINGUEZ—		
Union Oil Co's Carson 5	150	6804
MONTEBELLO—		
Fullerton Oil Co's McGinley F-29	60	8267
SANTA FE SPRINGS—		
Union Oil Co's Bell 73	350	5906
VENICE—		
Ohio Oil Co.'s R.G.C. 16	175	3855
LOS ANGELES COUNTY—		
F. A. Speik, Johnson 1	*	5201
BUENA VISTA HILLS—		
Standard Oil Co's No. 23-15D	275	2972
EDISON—		
No. Amer. Oil Cons. Co's Brown 2	60	2794
KERN FRONT—		
Geo. F. Getty's Grady 3	300	2091
ROUND MOUNTAIN—		
Honolulu Oil Corp's No. 58	715	2181
MESA—		
G. W. Padghum, No. 1	400	20.0
VENTURA AVENUE—		
Shell Oil Co's Taylor 85	310	5576
KERN COUNTY—		
The Texas Co's Jared How 1	*	4513

*Failures; †Junked; ‡Million cu. ft. gas.

Another Failure for Edison, Kern County

Los Angeles. — Another failure was chalked up against the Edison field, Kern County, a few days ago when A. T. Jergins Trust, McCowan 13-1, Section 13-30S-29e suspended drilling operations.

When drilling was started, this well was considered to have better than an everage possibility of developing commercial production. However, the top of the schist was penetrated at 3687 feet and, although the well was carried down to 3755 feet, no oil sands of any thickness were penetrated.

Company Takes Over South Mountain Lease

Los Angeles.—Calco Petroleum Corporation has taken over the old Driggs Petroleum Company holdings in the South Mountain field, Ventura County, and plans to develop the property further.

The Driggs Petroleum Company completed a well on February 14 for an additional production of 100 barrels per day but the derrick and equipment were destroyed by fire a few days later.

The new concern plans to recomplete this first well and drill several additional holes. The lease covers 40 acres in the westerly portion of Section 17-3N-20W.

New Dry Hole Near Round Mountain Field

Los Angeles.—That dreaded epitaph of the wildcatter—"Dry Hole"—was written above another promising venture when Frans-Nelson and Company's S. P. Land Company 1 was abandoned last week.

This project was located about one half of a mile to the northeast of the Round Mountain field, in Section 33-26S-28E, and was carried to 2004 feet. Operators had expected to obtain production from the Vedder sands but that formation was barren.

Montcalm-Gratiot Area Campaign Gets Underway

Mt. Pleasant, Mich.—Possibility that a sixth gas pool will be developed on the Montcalm-Mecosta County structure developed this week when L. G. Thompson's Knapp 1, 12n-9w-17, Montcalm County, a wildcat test, gauged 5,700,000 cubic feet from the Marshall sand formation at 1142 feet. The test originally was started to test the lower Traverse and Dundee limes on a block of acreage taken up by Haskel & Neff.

However, as a result of the commercial gas production the test has been tubed and capped. No immediate plans for further testing of the area were made available this week.

The Thompson-Knapp test is eight miles south of the Austin gas field. Other gas fields on the structure to the southeast includes the Belvidire, Millbrook, Hinton and Home areas.

Six of 30 immediately projected tests in the Montcalm-Gratiot area had started this week with an equal number building rig.

It seemed likely this week that rotary drilling will increase in the district at least for "whipping" the drift which ranges from 400 to 600 feet in this district. Taggart Brother's Smith 1, 10n-5w-1, set 10-inch casing through the drift after less than four days drilling time on 500 feet. This test is projected to the Dundee with rotary and if successful will be the first deep completion in the state with rotary tools.

Lupher Drilling Company, contractors on J. W. Leonard, Jr.'s West 1, 10n-5w-11, using a combination rotary and cable tool outfit had made over 500 feet in five days with rotary and will drill to about 800-900 feet and case. The hole will be completed to the Dundee with cable tools.

Cable tools have required from six and ten days up to drive pipe in this district.

Michigan Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MIDLAND COUNTY—		
Smith Pet. Co., Buschre 4, 13n-1w, se se ne-22	200	3420
ISABELLA COUNTY—		
T. K. Buzard, Battle 1, 16n-4w, n-se ne-35		lcn.
Chartiers Oil Co., Graham 1, 15n-3w se se sw-28	150	3606
W. J. Bernier, Webber 1, 15n-5w, sw sw sw-22	*	1492
W. Hunter Atha, Larrance 1, 16n-5w, ne se-36	*	1600
MONTCALM COUNTY—		
Daily Crude Oil Co., Christensen 5, 12n-6w, sw nw ne-10	¶4	1350
L. G. Thompson, Knapp 1, 12n-9w, se ne-17	¶6	1142
MECOSTA COUNTY—		
Alma-Mecosta Synd., Taggart 1, 14n-9w, ne se-10	¶7½	1430
ALLEGAN COUNTY—		
Bear Creek Dev., Fors 1, 3n-14, ne ne se-29	*	1950
MANISTEE COUNTY—		
T. K. Buzard, Chamberlin 1, 24n-16w-14	*	1361

*Failures; †Junked; ¶Million cu. ft. gas

Will Build Gas Line To Market Belvidire

Mt. Pleasant, Mich.—If a pending application is approved by the State Public Utilities Commission, Petroleum Transportation Company will lay a $200,000 gas gathering system in the Hinton-Millbrook-Belvidire gas area and sell to the Consumers Power Company. Petroleum Transportation Company, newly formed, has already closed a contract for sale and purchase of gas. The gas field, developed during the past year, is without a market.

Eastern Fields

Company, Well and Location	Init. Prod. Bbls.	Depth
PENNSYLVAINA		
GREENE COUNTY—		
Burns & Co., William Crow 1	¶	1966
WASHINGTON COUNTY—		
W. Smith & Co., Mrs. M. Winters 1	*	2700
Furman Nuss & Co., M. Keys 1	¶	2876
WEST VIRGINIA		
CABELL COUNTY—		
Fairfax Gas Co., Leonard Paugh 2	¶	1638
CALHOUN COUNTY—		
C. B. Lewis & Co., Kight 1	¶	2110
RITCHIE COUNTY—		
Ralph Roberts & Co., J. D. Rogers 1	*	....
Pittsburg O&G Co., Alvin Wince 14	*	1975
Clem S. Morris, H. B. Ayres 1	¶	1948
Claude Cottrell, Edna Wince 1	*	1950
PLEASANTS COUNTY—		
Ritcheville O&G Co., P. F. Matheny 2	15	1965
WIRT COUNTY—		
Fred Moorehead, J. W. Hickman 8	*	....
ROANE COUNTY—		
Big Four Drlg Co., Wallbrown 1	¶	1758
GILMER COUNTY—		
Steer Creek O&G Co., Mollahan 8	¶	1702
LINCOLN COUNTY—		
Leonard V. Hobbs Tr. Adkins 1	¶	2145
CENTRAL OHIO		
KNOX COUNTY—		
Upham Gas Co., Clem McNabb 1	¶	....
Robert Bright & Co., C. E. McKee 3	*	732
MEDINA COUNTY—		
L. T. McGrath, L. F. McGrath 3	*	485
O. K. O&G Co., T. W. Brinker 36	10	350
MEIGS COUNTY—		
Leroy Holmes & Co., Johnson 1	¶	1926
MUSKINGUM COUNTY—		
Hopewell FG Co., A. B. Dozer 1	¶	4139
PERRY COUNTY—		
Hopewell FG Co., John Clouse 2	¶	2974
JEFFERSON COUNTY—		
McBride & Co., Priest 1	10	350
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek 1570	*	3625
ATHENS COUNTY—		
Ohio FG Co., Colentine 1	¶	1428
STARK COUNTY—		
W. H. Larrick, DeGolia 1	3	3660
SOUTHEASTERN OHIO		
WASHINGTON COUNTY—		
Frank Creighton & Co., Shepherd 1	3	1609
McCoy & Lochary, L. T. Hale 2	1	568
O.V.&T.C. Burt, V.&L. Burt 2	*	355
Martin Adams & Co., Carney 1	*	475
Local Co., James M. Dow 8	2	1670
Harry Binagar, L. C. Moore 6	*	1957
Breenley Bros., Montgomery 37	*	1110
Schram & Herlin, E. Cummings 19	3	1251
Henning & Creighton, Shephard 7	¶	1609
Wooster & Wooster, John Flieman 5	*	....
MONROE COUNTY—		
Mike Stoffell, L. W. Stoffell 2	*	1292
Day O&G Co., Homer Burkhard 5	¶	2000
J. Albright & Co., Burkhard 2	*	2100
NOBLE COUNTY—		
E. C. Merry & Co., Adam Nau 8	*	481
T. & C. Rich, Hutchinson 3	¶	1342

*Failures; †Junked; ¶Million cu. ft. gas

Drilling Reports on Important Wildcats

CALIFORNIA

KERN COUNTY

ALPAUGH—Trico Oil & Gas Co's No. 4, 3-25-23, rigged.

ARVIN—General, Mattson 1, 1-32-29, td 1110 ft, wocs 18⅝-in 991 ft. Hall-Baker Co's core hole 4-4, 16-31-30, so 1270 ft.

BELRIDGE—Continental's Maylan 1, 7-28-20, dr sand and shale 2160 ft.

BUENA VISTA LAKE—Shell's B.V.A. 1, 9-32-25, dr sand and shale 5827 ft.

CALIENTE—Signal O&G Co's S. P. Land 1, 31-29-30, sd 2290 ft. Woodward Oil Co's Batz 1, 36-29-29, fsh 520 ft; S. P. Land 2, 31-29-30, so 497 ft.

COMANCHE POINT—Tejon Ridge Oil Co's No. 1, 23-32-29, dr 1740 ft sandy shale, gas in fractures.

EDISON—Cara Vel Pet. Corp's No. 1, 19-30-30, sd 1940 ft, to drop from report. Mountain View Dev. Corp's Spangler 1, 12-30-28, td 5122 ft, swabbing 50 bbls, 17 gravity oil.

GOULD HILLS—Texas Co's Jared How 1, 29-29-21, abn 4513 ft.

GREENFIELD—Big McKittrick Oil Co's Houghton 1, 7-31-28, coring 5421 ft green sand.

KERNELL—Standard's Rideout 1, 34-24-23, lcn; Widgeon 1, 1-25-23, td 2478 ft, set 46 ft 7-in, at 2478 ft, all perforated, 350,000 cu ft gas, still testing; Wldgeon 2, 12-25-23, rig.

LOST HILLS—Standard's United 1, 2-26-20, fsh dr pipe 3388 ft.

SEMITROPIC—Standard's Goldman 1, 5-27-23, br.

SOUTH DOME—Continental's Gatchell 28-7, 7-25-20, wocs 5299 ft.

TEMBLOR HILLS—E. A. Bender's Show 1, 2-29-20, lcn. Robt. Foster's No. 1, 2-32-22, dr brown shale 2530 ft.

WEEDPATCH—Associated's DiGiorgio 1, 3-31-29, td 5501 ft, pb 5290 ft, bridge 4860-4900 ft, sd.

WHEELER RIDGE—Badger Oil Co's El Tejon 1, 31-11-19, sd 6229 ft; Reserve O&G Co's Tejon Ranch 1, 2-10-19, td 3708 ft, pb 2520 ft to redr; Tejon Ranch 2, 12-10-19, dr 2145 ft.

KINGS COUNTY

ALPAUGH—Trico O&G Co's Magee & Stone 3, 36-24-22, dr sandy shale 4395 ft.

PYRAMID HILLS—General's Martin 1, 20-24-18, dr brown shale 1476 ft.

MISCELLANEOUS

FRESNO COUNTY—Milham Explor. Co's Oro Loma 1, 12-12-11, dr sand and shale 2560 ft. Russ Oil Synd's No. 1, 28-12-11, sd 5115 ft. Taft Well Dr. Co's Kreyenhagen 1, 33-22-16, lcn.

HUMBOLDT COUNTY—Texas Co's Eureka 1, 1-3-2, dr sand and shale 5657 ft.

SACRAMENTO COUNTY—Great American Pet. Co's Howard 1, 25-2-8, wocs 2952 ft.

SAN JOAQUIN COUNTY—Amerada's F. D. L. 1, 15-2-5, dr sand and shale 3452 ft.

TULARE COUNTY—Kabella Oil Co's No. 1, 12-23-27 spd.

MONTEREY COUNTY—Shell's Branch 1, 34-24-10 sp.

SANTA BARBARA COUNTY

GOLETA—West Elwood Oil Co's Simonds-Campbell 1, 9-4-28, wocs 3715 ft.

LOMPOC—M. J. Freeman's LaBrea 1, 11-7-33, dr shale 220 ft. Lompoc Pet. Co's Beauterbough 2, 18-7-34, sd 3030 ft.

NAPLES—Scully & Snyder's No. 1 7-4-29, fsh 6220 ft.

SANTA BARBARA—M & L Oil Co's Domerick 1, 29-4-27, rig.

SAN LUIS OBISPO COUNTY

CHOLAME—Willett Oil Ass'n's Jack 2, 10-25-15, testing 3560 ft.

VENTURA COUNTY

BARDSDALE—El Rancho Oil Co's Elkins 1, 9-3-19, dr 540 ft. Union's Dryden 1, 12-3-20, sp.

CONEJO—International Oil Dev.'s Powell 1, 33-2-20, td 3060 ft, wocs 2900 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

* —*dry hole abandoned well.*	owdd —*old well drilling deeper.*
‡ —*salt water (completions).*	owpb —*old well plugging back.*
† —*junked and abandoned*	pb —*plugged back or plugging back.*
¶ —*million feet of gas.*	r —*reaming.*
abd —*abandoned.*	rog —*rig on the ground.*
bbls —*barrels.*	rur —*rigging up rotary tools.*
br —*building rig.*	rust —*rigging up standard tools.*
b.s. —*basic sediment.*	sd —*shut down.*
csg —*casing.*	sdtr —*sidetracking.*
co —*cleaning out.*	sg —*show gas.*
dd —*drilling deeper.*	si —*shut in.*
dk —*derrick.*	so —*show oil.*
dr —*drilling.*	so & g —*show oil and gas.*
fsg —*fishing.*	spd —*spudding.*
ft —*feet.*	sr —*straight reaming.*
hfw —*hole full of water.*	sw —*salt water.*
in —*inches.*	td —*total depth.*
lcn —*location.*	ur —*underreaming.*
m —*milling.*	wih —*water in the hole.*
mim —*moving in materials.*	wo —*workover.*
mit —*moving in tools.*	wocs —*waiting on cement to set.*
mot —*milling on tools.*	wosr —*waiting on standard rig.*
n, s, e, w, —*north, south, east, west.*	
oih —*oil in hole.*	

HOPPER CANYON—Oil Ridge Oil Co's Moran 3, 1-4-19, sd 1546 ft.

LAS POSAS—Las Posas Pet. Co's Mehan 1, 22-3-20, fsh 8120 ft.

OJAI—Continental's Pirie 1, 12-4-23, td 2241 ft, ran liner and packer, bailing.

SANTA PAULA—High Mesa Oil Co's Butcher 1, 16-4-22, sp. Edw. M. Lesperance's Boosey 1, 31-4-20, sd 1150 ft. J. W. Mosher's No. 1, 22-4-21, sd 2300 ft.

SANTA SUSANA—American Dr. Co's No. 1-A, 31-3-17, sd 550 ft.

SESPE—Supreme Oil Co's No. 1, 1-4-20, sd 145 ft.

SHIELLS CANYON—Texas Co's Shiells 128, 4-3-19, dr sandy shale 6322 ft.

SIMI—Dawson Oil Co's No. 1, 8-2-17, td 1910 ft, bailing water, so. Paloma Oil Co's Paloma-Marr 1, 12-2-18, dr hard sand 935 ft.

SOUTH MOUNTAIN—Calco Pet. Corp's No. 2, 17-3-20, rig.

SOUTHERN CALIFORNIA

ARTESIA—Vanco Dev. Co's Millard 1, 25-3-12, dr 2560 ft.

BANDINI—Western Gulf Oil Co's Vail 1, (?)-1-12, br.

BREA CANYON—Pressel-Perry-Tull's Baird 1, 30-2-9, sd 4176 ft.

EL SEGUNDO—Republic Pet. Co's No. 1, 18-3-14, sd 5004 ft.

FAIRVIEW—Explorers Dr. Co's Norris 1, 9-6-10, sd 960 ft.

HUNTINGTON BEACH—Black Eagle Oil Co's No. 1-B, Permit 194, 32-5-11, testing on pump 4702 ft.

MANHATTAN BEACH—Bethlehem Explor. Co's Martin 1, 30-3-14, r 6732 ft.

NEWPORT—Si Rubens No. 1, 14-6-10, r 2574 ft. Wilshire Oil Co's Newport 1, 29-6-10 sp.

PICO—Frontier Oil Co's No. 1, 12-2-12, dr sand and shale 3200 ft.

PUENTE—N. O. Shively's Rowland 1, 23-2-10, td 3145 ft, swabbed water.

SAUGUS—International Oil Developers' Powell 1, 34-5-16, td 4339 ft, pb 2250 ft.

TOPANGO CANYON—Monarch Pet. Co's Sylvia Park 1, 5-1-16, rig.

SAN BERNARDINO COUNTY—Great American Pet. Co's Gapco D-1, 18-2-8, dr gray sand 448 ft.

KANSAS

BARBER COUNTY—Wentz's Skinner 1, cnw ne 29-31s-14w, lcn.

BARTON COUNTY—Lario Oil & Gas Co. et al's Nuss 1, nw sw sw 11-16s-14w, dr 910 ft. Wolf Creek's Kraft 1, sw sw sw 26-16s-11w, ur 8-in csg 3005 ft. Suppes & Witts' Hayes 1, sw sw sw 6-16s-14w, rig. McMorrow & Spencer's Hagen 1, ne ne ne 33-20s-11w, dr 3950 ft. Pryor & Lockhart's Herrington 1, ne ne nw 6-16s-12w, rig. Derby Oil Co et al's State 1, ne se se 4-20s-11w, cored 3307-3326 ft, testing.

BUTLER COUNTY—Emrich et al's Heorman 1, sw sw sw 20-26s-3e, spd.

CLAY COUNTY—Seidel Brothers' Younken 1-A, cs½ se nw 21-9s-4e, 1777 ft, no test.

COWLEY COUNTY—McCoy's Brandenburg 1, sw sw se 17-34s-5e, sd 2275 ft. Lloyd, Frost & Study's Weathered 1, sw se se 28-31s-3e, sd 1940 ft. Ostat et al's Eckhardt 1, se se nw 15-35s-6e, spd & sd. Baden, Johnson, Roth & Farrout's David 1, ne ne sw 35-30s-4e, mim.

ELK COUNTY—Clay Pet Co's Shambaugh 1, cne se 20-28s-9e, dr 2765 ft.

ELLSWORTH COUNTY—Carter Oil Co et al's Teubner 1, se se nw 26-17s-9w, pumped 90 bbls oil 4 hrs. Pryor & Lockhart et al's Gregory 1, se se se 19-16s-8w, hfw 3380-3386 ft & sd. Lario Oil & Gas Co et al's Wright 1, sw sw ne 17-16s-8w, fsg 3098 ft. Lario Oil & Gas Co et al's Central National Bank 1, se se nw 33-15s-8w, spd. Lario Oil & Gas Co et al's State 1, sw sw sw 29-15s-8w, dr 2225 ft. Western Exploration Co's Wilkins 1, nw sw nw 9-17s-9w, cellar & mim.

HARVEY COUNTY—Twin Drilling Co et al's Ruth 1, sw sw sw 16-22s-2w, dr 2120 ft. Goering Brothers' Brainard 1, ne ne sw 3-23s-2w, ru. Hartman & Blair's Elberson 1, nw nw nw 15-24s-3w, cellar. H. H. & S. Oil Co's Buller 1, ne ne se 31-23s-2w, pits. Cameron, Derby & Trees' Brainard 1, sw se nw 19-24s-2e, dr 1420 ft. Winkler-Koch et al's Mueller 1, se sw nw 15-23s-2w, br.

McPHERSON COUNTY—Lario Oil & Gas Co's Base 1, sw sw sw 22-20s-2w, set 6-in csg 3420 ft, sd 3562 ft. Palmer Oil Corp's Swenson 1, ne ne sw 11-18s-3w, hfw 2628-2634 ft td 2725 ft, ur 8-in csg. Brosius et al's Hanson 1, nw nw sw 15-17s-2w, sd 1108 ft. Shell Pet Corp's Wenger 1, ne ne ne 2-20-1w, 1500 ft oih, 112 bbls oil 8 hrs. W. C. McBride's Mugler 1, se sw sw 22-20s-3w, hfw 2556 ft, run 8-in csg 2678 ft.

NESS COUNTY—Phillips Pet Co's Young 1, cnw sw 13-18s-21w, td 3649 ft, set 8-in csg 3644 ft, rust. Atlantic Oil Co's Mark "A" 1, cse se 28-20s-23w, spd.

OSAGE COUNTY—Jim Edwards' Dietrick 1, cnw se 21-14s-15e, so & g 783-800 ft.

PAWNEE COUNTY—Atlantic Oil Co's Slepake 1, cne ne 15-23s-17w, dr 2250 ft.

RENO COUNTY—Privett Drilling Co's Crotts 1, ne nw ne 27-26s-10w fsg 4338 ft. Bradley's Olmstead 1, sw sw sw 22-22s-7w, rog. Mylius et al's Sprowl 1, ne nw ne 1-24s-5w, mim.

RICE COUNTY—Allison & Fitzwilliams et al's Stump S 1, nw nw sw 4-18s-10w, woc 3261 ft. Foraker-Nickerson et al's Lyon 1, se se ne 27-20s-8w, td 3460 ft, ur 5-in csg. Vicker's Pet Co et al's Gouldner 1, se ne nw 16-18s-9w, co 2060 ft. Day's Mason 1, nw ne ne 28-21s-7w, dr 1700 ft. Gypsy Oil Co's Kessling 1, nw nw sw 10-20s-9w, td 3261 ft, pumped 201 bbls oil, treated with 1000 gals acid, waiting on acid reaction. Fee et al's Reiss 1, nw nw ne 24-19s-9w, lcn. Fred Rust et al's Brown 1, ne ne 16-21s-6w, rig.

ROOKS COUNTY—Smith & Ash's Nelson 1, nw nw ne 27-10s-16w, sd 50 ft. Trees Oil & Findeiss' Johnson 1, sw sw se 26-10s-19w, run 15-in csg 334 ft. Stearns-Streeter et al's Hoskins 1, se sw se 34-9s-16w, sd 3454 ft.

RUSSELL COUNTY—Wolf Creek et al's Penn Mutual 1, sw sw sw 22-15s-15w, dr 1165 ft. Murphin's Funk 1, sw sw sw 19-12s-13w, fsg 3040 ft. Reserve et al's Moore 1, cnw nw sw 15-13s-12w, rog. Hartman & Blair's Hilder-

brandt 1, nw ne sw 12-14s-14w, td 3086 ft, pulling 8-in csg. Vernon & Murphin's Becker 1, ne ne ne 33-15s-14w, ru. Ryan Pet Co's Newbold 1, nw se ne 25-12s-15w, sd 2055 ft.

SALINE COUNTY—Dieter et al's Herrington 1, ne nw se 3-13s-1w, sd 3289 ft.

SEDGWICK COUNTY—Western Kansas Oil & Refining Co et al's Betzen 1, se se ne 17-16s-13w, dr 2440 ft.

STAFFORD COUNTY—Lario Oil & Gas Co et al's Tudor Morgan 1, se se nw 23-24s-13w, pumped 65 bbls oil, treated with 1500 gals acid, no test.

SUMNER COUNTY—Shell Pet Corp's Green 1, se sw nw 3-33s-2e, 2525 ft. Hansa & Lauck's Lang 1, se se nw 1-14s-21w, rig. Allison & Fitzwilliams et al's Hitchcock 1-B, se se nw 16-30s-1w, lcn.

WOODSON COUNTY—Kite et al's Gorman 1, ne ne nw 18-25-14e, dr 630 ft.

OKLAHOMA

ATOKA COUNTY—H. F. Potts' Nichols 1, sw sw nw 32-2s-9e, dr 2635 ft. Clark et al's Morrison 1, se se se 32-1n-14e, sd 80 ft. Keaton's Rowland 1-A, ne ne ne 18-13n-10e, dr 115 ft.

BECKHAM COUNTY—Fred Coogan et al's Shelton 1, sw sw sw 33-10n-25w, sd 3608 ft.

BRYAN COUNTY—C. B. Welch's Collins 1, sw sw nw 19-8s-8e, sd 570 ft. Trio Oil Co.'s Gilbert 1, se se se 25-8s-7e, sd 343 ft.

CADDO COUNTY—Denver P&R Co.'s Sah-Cam 1, cse se 33-10n-10w, dr 3500 ft. H. W. Lee et al's Horton 1, ne ne ne 9-6n-13w, rig. Lee et al's Stacey Ferrell 1, sw ne ne 3-6n-13w, dr 2205 ft.

CANADIAN COUNTY—Carl Larkin's Brobine 1, nw nw ne 33-13n-5w, dr 4270 ft.

CARTER COUNTY—Carter Oil Co.'s Humble-Williams 1, sw ne sw 27-2s-3w, td 5014 ft, set 9⅝-in csg 4915 ft. Waco Turner's Munson 1, ne nw ne 35-5s-2w, dr 2065 ft. Eggleston's Harmon 1-A, ne se se 8-1s-2w, sd 420 ft.

CHOCTAW COUNTY—Babcock's Nelson 1, nw nw nw 27-7s-17e, sd 864 ft.

CLEVELAND COUNTY—Sinclair Prairie Oil Co.'s Franklin Community 1, se nw se 21-10n-2w, dr 6338 ft.

COAL COUNTY—Hudspeth et al's Schmelzer 1, ne sw ne 35-1n-8e, rig.

COMANCHE COUNTY—F. F. Stevens' Green 1, se se sw 2-1n-13w, dr 1487 ft. Henry Rosenthal et al's Au-chi-re-ah 1 "B," nw nw nw 5-1n-9w, td 1493 ft, ru to dd.

GARVIN COUNTY—National Production Co.'s Littrell 1, ne ne ne 31-2n-3w, td 1528 ft, to dd. George Pace's Smith 1, sw sw ne 35-1n-1e, dr 1995 ft. Anderson-Kerr et al's Rodke 1, nw nw se 17-4n-1w, lcn.

GRANT COUNTY — Helmerich - Payne's Crouse 1, cne sw 29-25n-8w, dr 6105 ft.

GREER COUNTY—Fred Morgan et al's Carder 1, csw se 19-4n-22w, sd 1012 ft. Ent & Camp's Siminton 1, sw sw se 29-5n-21w, ru mach. Wren & Slemaker's 1, cse ne 35-5n-23w, lcn. Gled Oil Co.'s Luker 1, se se se 6-4n-21w, ru mach.

HARMON COUNTY—Jud Leath et al's McConnell 1, nw nw nw 22-3n-24w, waiting on dr water. Wilson & Walker's Wilhelm 1, se se se 30-4n-24w, sd 30 ft. Whatley et al's Hamilton 1, nw nw se 25-4n-24w, cellar.

HUGHES COUNTY—Freeman et al's Kite 1-A, nw nw ne 8-6n-10e, co 685 ft. Dandridge & Crane's Mead 1, nw nw ne 17-5n-9e, sd 1335 ft. Amerada Pet. Corp.'s Adams 1-A, ne ne sw 31-9n-9e, treated with 1000 gal acid, flow 170 bbls oil in 40 minutes. The Texas Co.'s Keaton 1, nw nw sw 4-8n-10e, br.

JACKSON COUNTY—Palo Duro Oil Co.'s Ealum 1, se se sw 15-2n-21w, dr 970 ft. Associated Oil Co.'s Harrell 1, ne ne sw 13-1s-21w, dr 1216 ft. Whatley & Whatley's Holt 1, nw sw se 20-1n-20w, dr 1247 ft. Emenhiser's Murrell 1, se sw se 17-3n-21w, sd 910 ft. Golden & Cochran's Duncan 1, sw sw ne 34-2n-21w, dr 1800 ft. Buell et al's Kizzar 1, se se ne 2-2n-22w, dr 1325 ft. Triangle Oil Co.'s Fox 1, csl se nw 11-3n-20w, fsg 800 ft. Burke-Greis Oil Co.'s Milbrant 1, sw nw sw 31-3n-19w, lcn. Gypsy Oil Co.'s Boucher 1, nw sw nw 32-1n-19w, dr 1045 ft. Marshall & Burnham's Hess 1, ne ne sw ne 27-1s-20w, set 12-in csg 86 ft, dr 90 ft. Jack Kilgore et al's Wooldridge 1, se se ne 15-3n-21w, dr 2005 ft.

JEFFERSON COUNTY—Gypsy Oil Co.'s James 1, sw se se 30-6n-6e, dr 665 ft.

KAY COUNTY—Harris-Haun's Schuessler 1, cnw sw 3-28n-2e, dr 3710 ft. Lindsay's Waggoner 1, nw nw ne 3-27n-1e, cellar. Max Kelly's Spore 1, nw nw se 17-27n-2e, cellar.

KIOWA COUNTY—Henson & Patton's Beeler 1, ne ne ne 11-5n-15w, sd 517 ft. Buell & Herndon's Haught 1, se se ne 22-1n-16w, dr 255 ft.

LINCOLN COUNTY—Carter Oil Co. et al's McFarland C-38 1, sw sw ne 18-13n-4e, dr 3649 ft. Stanolind Oil & Gas Co. et al's Campbell 1, sw sw nw 3-14n-3e, coring 4420 ft. Carlock's Young 1, cn½ nw nw 23-15n-5e, rur. Stanolind Oil & Gas Co.'s Cavanaugh 1, se se ne 31-15n-5e, woc.

LOGAN COUNTY—Sinclair Prairie Oil Co.'s School Land 1, se se se 36-17n-1w, swab 377 bbls oil and flowed 425 bbls oil. Sinclair Prairie Oil Co. & Slick-Urschel's Koatsch 1, sw sw sw 23-15n-3w, dr 6312 ft. Anderson-Kerr et al's Renfro 1, ne ne ne 33-16n-4w, dr 5020 ft. J. C. Shaffer's Hammond 1, se se sw 10-15n-4w, dr 6235 ft. Houghton Royalty's Langston 1, sw sw se 13-17n-1w, lcn.

LOVE COUNTY—Amerada Pet. Corp. & Stanolind Oil & Gas Co.'s Westheimer & Daube 1, nw se se 27-6n-2e, td 1875 ft, pb 561 ft, dr out to 790 ft & sd.

MARSHALL COUNTY—Paul R. Robb's Vittetoe 1, cne se 11-5s-4e, dr 5420 ft.

McCLAIN COUNTY—Anderson & Kerr's Newburn 1, nw sw ne 24-5n-3e, set 7-in csg 2938 ft.

McCURTAIN COUNTY—Schrivner et al's Central Life Assn. Society 1, ne sw sw 24-6s-21e, set 8-in csg 587 ft, dr 872 ft.

MURRAY COUNTY—Manahan Oil Co's Ward 1, ne se nw 18-1s-3e, dr 1890 ft. Equitable Oil & Gas Co's Baer 1, sw nw nw 21-1s-3e, dr 721 ft. Equitable Oil & Gas Co's Ferguson 1, ne ne sw 26-1e-3e, set 15-in csg 26 ft, wocs.

NOBLE COUNTY—Stanolind Oil & Gas Co., Amerada Pet. Corp. & Slick's Fuller 1, cse sw 34-20s-2w, flowed 50 bbls oil per hr, shot 20 qts 5079-5081 ft, swab and flow 267 bbls oil.

OKFUSKEE COUNTY—Amerada Pet. Corp. et al's Jaynes 1, nw nw sw 20-10n-10e, pb 3883 ft, wocs.

OKLAHOMA COUNTY—Atkinson et al's Reed 1, ne ne ne 4-12n-3w, td 6456 ft. Gypsy Oil Co's Schock 1, nw sw sw 2-14n-3w, dr 4445 ft. Sinclair Prairie Oil Co's Corbett 1, ne nw ne 17-13n-3w, rur. Slick-Urschel et al's Owen Community 1, se se se 19-13n-3w, rur.

PAWNEE COUNTY—Trees Oil Co's Susan Wedd 1, cse se 27-24n-5e, dr 750 ft.

PITTSBURG COUNTY—Gray et al's Lee 1, nw nw se 12-5n-13e, fsg 1210 ft.

PONTOTOC COUNTY—Paramount Oil Co's Graham 1, sw se sw 13-1n-7e, td 3478 ft, cement off bottom, wocs. Mudge Oil Co's Clampett 1, sw nw nw 10-2n-6e, sd 915 ft. Crabb-Craw Oil Co's Breco 1-A, se ne sw 3-4n-6e, sd. Crabtree's Chandler 1, ne se sw 4-5n-6e, dr 1669 ft. Gillette & Kroeger's Duver 1, nw nw se 36-1n-6e, sd 1247 ft. Fleetborn Oil Corp's Oliver 1, ne nw se 21-4n-5e, cored 1822-1896 ft. Phillip Boyle's McCracken 1, ne nw nw 31-5n-4e, dr 1889-1896 ft, Delaney et al's Fulsame 1, se se ne 35-4n-6e, lcn. Marcum's Magnuson 1, sw se se 23-2n-7e, td 1930 ft, will rur & dd. Continental Oil Co.'s McCarthy 1, csw nw 12-1n-7e, lcn.

POTTAWATOMIE COUNTY—James et al's Neal 1, nw se sw 4-5n-3e, swab 80 bbrls oil 5 hrs, water broke through, recementing. Howard Sherman et al's Wingo 1, ne nw se 32-10n-5e, td 4361 ft, woc.

PUSHMATAHA COUNTY—William Ungerman's Messer 1, se sw sw 35-3s-18e, td 2990 ft, pull 6-in csg.

SEMINOLE CONTY—Ray Dorris & J. T. Hall's Dorris 1, se se sw 31-10n-7e, sd 608 ft. Sovereign Drilling Co et al's Thomas 1, nw nw se 8-6n-7e, sd 3950 ft. Verser-Clay et al's Thomas 1, ne se nw 1-6n-6e, ur 6-in csg 2450 ft. Slick-Urschel's Baskin 1, ne ne sw 9-5n-6e, rust & sd.

STEPHENS COUNTY—Wm. Angle et al's Cooper 1, ne ne ne 35-1s-19w, dr 2688 ft.

TILLMAN COUNTY—Laper et al's Conrad 1, ne ne ne 35-1s-19w, set 10-in csg 680 ft, dr 1150 ft.

WOODS COUNTY—I. T. I. O. & Continental Oil Co.'s L. csw se 32-22n-14w, mim.

WYOMING

ALBANY COUNTY—California Co.'s Holst 1, ne se se 13-17n-77w, swabbing 20 bbls per hr 5 ft in Dakota sand at 3211 ft. The wild cat was deepened from the Muddy, where it developed 50 bbls daily between 3140-75 ft last December and shut down.

BIG HORN COUNTY—California Exploration Co.'s Gafner 1, sw sw 4-54n-94w, Spence Dome, dr 1250 ft.

CARBON COUNTY — Earl W. Reader, Inc.'s Whitford 1, sw se ne 24-20n-84w, dr 3785 ft. Tested dry in General Petroleum sand 3600-30 ft. Ohio Oil Co.'s Sid Morris 1, cnw se 6-20n-77w, Diamond Dome, abd at 7360 ft, after pb to Muddy at 5120-74 ft, where it was a failure. Ohio Oil Co. and California Co.'s Kyle 1, ne se ne 26-21n-79w, fsg for 2-in dr stem at 5206 ft.

CONVERSE COUNTY—Chadron-Osage Oil Co.'s State 1, cne ne 16-32n-69w, dr at 300 ft.

MONTANA

FERGUS COUNTY—Northern States Oil Co.'s Woodward 1, se se 20-14n-24e, dr at 3093 ft. S. W. Pennock's Nordheim 1, nw ne ne 6-21n-18e, dr at 585 ft.

PHILLIPS COUNTY—Grant Smith's Phillips 4, e½ nw sw 2-24n-24e, dr at 150 ft. Guy Norman's Pewitt 1, ne nw ne 20-24n-24e, dr at 487 ft.

TOOLE COUNTY — J. H. Hamilton's Northern Farms 1, cne sw 10-37n-5e, sd at 2480 ft.

COLORADO

BOULDER COUNTY—Leslie R. Steele et al's Maxwell 1, sw ne nw 24-1n-71w, fsg tools at 370 ft.

HUERFANO COUNTY—S. W. Pressey et al's Ojo 1, sw ne 10-29n-69w, Oak View district sd at 2550 with tools in hole.

JEFFERSON COUNTY — Ruby Hill Oil Co.'s Braden 1, se se 24-4s-69w, co to bottom at 4280 ft.

LINCOLN COUNTY—Consolidated Smelting & Metals Corporation's Hancock 1, nw nw se 7-17s-52w, running 12½-in csg to set at 1300 ft.

PARK COUNTY—South Park Oil & Gas Co.'s State 1, se se sw 16-11s-17w, dr at 1375 ft.

PROWERS COUNTY—Trojan Oil & Gas Co.'s Lotus 1, nw ne ne 15-23s-46w, dr in sandy lime at 5077 ft.

NEW MEXICO

EDDY COUNTY—Geo. F. Getty Oil Co.'s Andrew Dooley 7, swc nw 24-20s-29e, 6000-ft test, elev 3309 ft, dr 3665 ft.

LEA COUNTY — Amerada Pet. Corp.'s State 1-F, c sw sw 36-19s-36e, Monument area, elev 3594 ft, top anhydrite 975 ft, dr 2890 ft. Anderson-Prichard Oil Corp.'s Brett-Conoco 1, c ne nw 7-20s-35e, Monument area, lcn; Fisher 1, c se ne 8-20s-35e, elev 3690 ft, dr 1065 ft. Amon G. Carter et al's G. H. Mattix-Conoco 1, c se nw 3-24s-37e, dr anhydrite 1265 ft. Jeffers Oil Co. (R. H. Henderson's) C. M. Carlson-Conoco 1, c nw se 27-25s-37e, lcn; A. N. Etz-Conoco 1, c ne sw 12-21s-32e, dr 145 ft; Jiminez-Conoco 1, c sw se 11-20s-33e, dr 110 ft. R. H. Henderson et al's P. J. Langley 1, c se se 8-25s-37e, elev 3162 ft, top salt 1205 ft, making gas, lost 2 strings tools, td 2875 ft, sd for rotary. Humble's J. L. Coates 1, c nw ne 10-24s-36e, elev 3383 ft, salt 1314-2947 ft, top brown lime 2996 or 2988 ft, co jkd gasser, td 3355 ft; Coates 1-A, relief well, elev 3385 ft, top anhydrite 1324 ft, top salt 1493 ft, td 3394 ft, pumping 200 bbls water per hr into jkd gasser. Maljamar O&G Corp.'s P. Miller 1, c nw sw 23-17s-32e, top anhydrite 790 ft, top salt 955 ft, elev 3992 ft, sg 3210-14 ft, dr 3270 ft. Nat'l Securities Oil Corp.'s V. Linam 1, nec s½ sw 33-18s-37e, elev 3712 ft, top anhydrite 1580 ft, logged salt 1716-2650 ft, top lime 2956 ft, pb fr 4506 to 4230 ft for acid treatment in lime. Ohio Oil Co.'s State-McDonald 3, c nw se 16-22s-36e, rig. Repollo Oil Co.-Anderson-Prichard Oil Corp.'s B. W. Arnold 1, swc nw se 6-20s-32e, elev 3567 ft, top anhydrite 1540 ft, salt water 1637-2695 ft, sg 3500 and 3785 ft, r hole 3985 ft. Rowan Drilling Co. & Neville G. Penrose's E. M. Elliott-Conoco 1, c ne sw 17-22s-37e, cem 7⅝-

in cas 2578 ft, td 2595 ft. Shell Pet. Corp.'s State-Endura 1, c se ne 12-21s-35e, elev 3588 ft, top lime 3020 ft, pb from hfw 4404 to 3987 ft, treated with 3000 gals acid without results, pb to 3926 ft and given shot, now co. The Texas Co.'s Saunders 1, c se sw 18-19s-37e, Monument area, lcn. The Texas Co.-Amerada & Columbian Carbon Co.'s Parker 1, c nw nw 29-26s-37e, elev 2952 ft, sulphur water 3242 ft, td 3248 ft, flowed 11 bbls fluid per hr 65 percent bs&w, testing. W. L. Todd and The Texas Co.'s Fred Cole 1, c ne ne 35-19s-33e, elev 3603 ft, top salt 1540 ft, top white lime 3250 ft, cem 7-in cas 3465 ft. Sam K. Vierson et al's W. D. Robinson 1, c nw se 14-11s-32e, elev 4355 ft, rig.

EAST TEXAS

ANDERSON COUNTY—Gulf Prod. Co.'s W. C. Calloway 1, P. Martin sur, Camp Hill area, lcn abn; M. Maddox 1 (120-ac), David Stilts sur, elev 657 ft, Pecan chalk 3969-4270 ft; Austin chalk 4960-5184 ft, top Sub-Clarksville sand 5190 to 5192 ft, gauged 60 bbls. 1 hr thru ¾-in choke on tubing; W. B. Robinson 2 (100-ac), D. Stilts sur, elev 630 ft, cem 10-in cas 40 ft; L. B. Ross 1 (35.7-ac), J. C. Rosson sur, elev 654 ft, Pecan chalk 3976-4256 ft, Austin chalk 4936-5131 ft, Sub-Clarksville sand 5134-36½ ft, gauged 215.85 bbls oil in 16 hrs on ¾-in choke. Gulf and Humble's O. G. Rogers 1 (267½-ac), Daniel Parker sur, 5 mi sw of Elkhart, elev 301 ft, Pecan chalk 4095-4280 ft, Austin chalk 5047-5280 ft, top Woodbine section 5486 ft and sand at 5519-23 ft, tested sw, dr 5540 ft. Hunt Prod. Co.-Sun Oil Co.'s Mrs. Alice Scott-Pure 1 (300-ac), Jas. Crawford sur, Slocum area, good show oil 1145-56 ft, dr 2610 ft. Tide Water and Texas Seaboard Oil Co.'s N. N. Wills 21-A, Cayuga field Trinity test, elev 308 ft, dr 7400 ft; John Smith 1 (49.1-ac), John Adams sur, Long Lake field gas unit, elev 294 ft, Pecan chalk 3458-3709 ft, top Austin chalk 4715 ft, dr 4730 ft; C. T. Valentine 1 (301-ac), John Little sur, 9 mi n of Palestine, mim.

BOWIE COUNTY—Tex-Ark Oil Co.'s J. B. Hamilton 1 (40-ac), Jessie Milam sur, elev 272 ft, sd 250 ft.

CAMP COUNTY—E. J. Moran, G. E. & Ray Hubbard's W. M. Mitcham 1 (100-ac), L. Rose sur, 1½ mi n of Newsome, lcn.

CASS COUNTY—Penguin O&G Co.'s A. M. Tyne 1 (570-ac), David Frazier sur, 3 mi w of Avinger, dr 1575 ft.

CHEROKEE COUNTY—Jacksonville O&G Corp.'s H. D. Henderson 1 (40-ac), J. Pineda sur, elev 409 ft, sd 693 ft. Killough et al's J. S. Strickland 1 (40-ac), Urian Moore sur, 7 mi nw of Jacksonville, elev 433 ft, sd 3505 ft. Florence Oil Co.-H. A. Baker's T. Smith 1 (40-ac), Jose Pineda sur, 5 mi nw of Jacksonville, lcn. Ponta Oil Co. et al's C. W. Darley 1 (35-ac), (east) Cyrus Parks sur, 2¼ mi s of Summerfield, elev 434 ft, dr 1500 ft. T. J. Wood & Young's New Birmingham 3 (160-ac), Levi Jordan sur, Rusk pool, rig.

ELLIS COUNTY—Murphree & Lon Coker's Coker 1 (30-ac), R. de la Pena sur, Austin chalk 622-1010 ft, sd 1170 ft.

FREESTONE COUNTY—J. B. Daniel Oil & Royalty Co.'s P. D. C. Ball-Shell 2 (300-ac), J. Y. Aguilera sur, Red Lake area, elev 421 ft, Pecan chalk 3057-3280 ft, top Austin chalk (soft) 4098 ft and hard at 4110-4452 ft, gauged 4,730,000 ft gas on ½-in choke, td 4831 ft. J. A. Hoover et al's W. W. McFall 1 (65-ac), S. Garrison sur, lcn.

GREGG COUNTY—O. T. Clark et al's T. G. Williams 1 (100-ac), David Hill sur, 3 mi ne of Longview, elev 426 ft, Pecan chalk 2391-2985 ft, top Austin chalk 3447 ft, sd 3620 ft.

HENDERSON COUNTY—Great State Oil Corp.'s R. Sid Ansley 1-A, N. B. Thompson sur, elev 268 ft, Austin chalk 2532-2826 ft, sd in shale 3304 ft. Edson Pet. Co.'s C. L. Loper 1 (3-ac), I. Clendennen sur, Cayuga field, lcn. O. M. Rector et al's C. L. Loper 1 (3½-ac), I. Clendennen sur, Cayuga field, lcn. Taubert & McKee's M. T. Dodd 1 (160-ac), Geo. Aldrich sur, 4 mi e Malakoff, elev 376 ft, Pecan chalk 2390-2504 ft, Austin chalk 3456-3610 ft, sd 4049 ft. Fred Upchurch et al's C. L. Loper 1 (3½-ac), I. Clendennen sur, Cayuga field, lcn. H. M. Wilson et al's fee 1 (943-ac), Thomas Caro sur, 5 mi n Malakoff, dk. Toddie L. Wynn and LaRue Bros.' G. W. Forester 1 (114-ac), David Cherry sur, elev 432 ft, Pecan chalk 2604-2784 ft, Austin chalk 3630-4043 ft, top Sub-Clarksville 4047 ft, coring shale 4085 ft.

HOPKINS COUNTY—D. A. Hale et al's L. N. Hall 1 (70-ac), A. Caro sur A-143, elev 506 ft, Pecan chalk 1825-2040 ft, top Austin chalk 2728 ft, sd 2950 ft.

HUNT COUNTY—D. T. Cauble et al's Y. B. Reed 1 (220-ac), F. Thweatt & C. B. Payne sur, 3 mi se Greenville, top Woodbine 2809 ft, top Red Beds 2874 ft, coring ss 3425 ft. J. F. Morrissey Co., Inc.'s B. F. Fry 1 (146-ac), Caloway Davis sur, 7 mi se Ladonia, rog. H. G. Samson and Shawver et al's J. R. Phillips 1 (53 1/3-ac), W. L. James sur, elev 522 ft, top Gober chalk 550 ft, top Austin chalk 1113 ft, sd 1617 ft.

KAUFMAN COUNTY—G. H. Germany et al's D. Clark-W. S. Kirby 1, S. Edens sur, co 1780 ft. L. P. Kean et al's J. B. Hunter 1, R. Sowell sur, 4 mi s Terrell, elev 453 ft, top Austin chalk 1785 ft, dr ss 3300 ft.

LIMESTONE COUNTY—C. F. Carter et al's S. E. Dean 1 (75-ac), Pedro Varella sur, 3½ mi sw Mexia, dry and abd 1717 ft. Dan H. Daugherty et al's Sallie Welch 1 (94-ac), Pedro Varella sur, Austin chalk 2350-2650 ft, top Woodbine 2890 ft, claim so 2940-51 ft, dr shale 2953 ft. J. Edward Mills et al's J. B. Hunt 1 (34¼-ac), Israel Woods sur, 3 mi ne Kosse, Pecan chalk 2010-2137 ft, Austin chalk 2780-3158 ft, top Woodbine sand 3578 ft, fsh cas 3636 ft.

MORRIS COUNTY—Marydun O&G Co.-Sterling O&R Co.'s T. C. Conner 1 (1000-ac), M. W. Mathews sur, elev 294 ft, Pecan chalk 2345-2890 ft, Blossom sand 3398-3451 ft, sd 4068 ft. Steve J. Rotondi et al's W. & C. Smith 1 (50-ac), M. C. Vela sur, 2½ mi sw Naples, rig. B. L. Watson et al (was HNH Drlg. Co.'s) E. Hall 1 (177-ac), Levi Jordan sur, top Pecan chalk 2360 ft, sd 4002 ft.

NAVARRO COUNTY—L. N. McCulloch et al's Berry Bros. 1 (35-ac), W. W. Moss sur, Austin chalk 751-1060 ft, sd 1182 ft. Wiggins et al's D. A. Donoho 1 (63½-ac), John Cauple sur, 2 mi sw Corsicana, elev 467 ft, sd 1439 ft.

RED RIVER COUNTY—J. E. Dinger et al's W. T. Norris 1 (351-ac), Joseph Guest sur, 1 mi s Detroit, elev 464 ft, Red Beds 1290-1413 ft, sd 1861 ft. C. M. "Dad" Joiner et al's D. Rust 1, C. C. Wilborn sur, s edge Avery, dk.

ROBERTSON COUNTY — H. L. Patton Co.'s W. H. & H. A. Ely 1 (616-ac), Antonio Manchaco sur, 5 mi se Hearne, elev 392 ft, top Carrizo 661 ft, tested water 1656 ft.

RUSK COUNTY — Ben E. Lamb et al's Haywood Leath 1 (185-ac), L. J. Dooley sur, 2½ mi ne Pirtle, elev 370 ft. Pecan chalk 2418-2793 ft, Austin chalk 3352-3512 ft, sd 4740 ft.

SMITH COUNTY—W. L. Cloud and A. G. Deck's Dora Kendall 1, John Williams sur, 3 mi e of Van field, sd 1650 ft. Dr. Garland et al's J. W. Bartlett 1, R. G. Stewart sur A-955, 1 mi se Jamestown, elev 498 ft. Pecan chalk 2500-3070 ft, drv and abd 3102 ft. W. R. Harrison et al's W. P. Rushing 1, Jacob Herrin sur, 1½ mi se Whitehouse, elev 393 ft, pb from 4673 to 4330 ft, sdo.

TITUS COUNTY—Steve J. Rotondi et al's O. C. Lillianstern 1 (40-ac), W. H. Crawford sur, 5 mi se of Talco, elev 301 ft, dk.

VAN ZANDT COUNTY—J. C. Acree et al's F. W. Anderson 1 (160-ac), John Blair sur, 4 mi n Wills Point, temp abn 1850 ft. Blackwell O&G Co. et al's Mrs. C. H. Browning 1 (100-ac), J. P. Tackett sur, 2½ mi se of Van, lcn. A. A. Geyer et al's J. E. Crim 1 (41.6-ac), Wm. Daniel sur, lcn. Monterey Oil Co. (Green & Winn's) S. E. Cox-A. L. Eaton 1 (67-ac), J. Wilson sur, 2 mi se Martin Mill, elev 518 ft, top Pecan chalk 2730 ft, top Austin chalk 3900 ft, dr 3925 ft. O'Byrne et al's J. D. Daniels 1 (115-ac), W. R. Flowers sur, 2¼ mi s Martin Mills, lcn. Newt Tidwell & W. T. Rogers' L. E. Breucher 1 (98¼-ac), David Clapp sur, 5 mi se Wills Point, elev 499 ft, dr 355 ft.

SOUTH TEXAS

BANDERA COUNTY—Plaateau Oil Co.'s R. G. Garrison 1, sec 506, GC&SF sur, dr 3165 ft.

BASTROP COUNTY—Malone & Owens' S. S. Spooner 1, L. Leverenz sur, dr 1350 ft. Marts & Beavens' W. L. Miller 1, blk 22, Dennis Dykes sur, fsh 2975 ft.

BEE COUNTY—Mills Bennett & W. F. Morgan's Bassinger 1, ne nw sec 7, Ragley sub, Uranga gr, n Dirks pool, elev 346 ft, df, sand 3847-53 ft, dst 600 ft oil, 30 lbs. pressure 15 min, csg set, dr out plugs. New location made in this extension area not included in wildcat report. Dirks Bros.' Goree 1, J. Taylor sur, dr 2300 ft; I. J. Miller 1, Cayetno Rivas sur, still lcn. Falvey et al's S. D. Copeland 1, B. Q. Hadley sur, sp. Felmont Corp.'s J. T. Earnest 1, Bee County School land sur No. 17, dr 4525 ft. A. Hartzendorf's Fee 1, G. A. Kerr sur, sd 3648 ft for 3 inch ds. Humble O&R Co.'s Thompson 2, Garret Roache sur, trying to cut out stuck ds 5405 ft. Francis P. Hynes et al's Theo. M. Plummer 1, Plummer sub, sec 33, ab. 44, dr 600 ft. Paul Meaders et al's Keller 1, Alcorte sur, sec 28, coring 2437 ft, sand 2415-20 ft showed gas. Mid-Continent Crude Oil Co.'s A. J. Kimball 2, S. Winship sur, sd in sdtr hole, td 3555 ft. Tother Oil Co.'s J. T. Hudman 1, C. Baker sur, td 3117 ft, pb and perf csg 2940-80 ft, testing. Worth Oil Co.'s Rutledge 1-A, B. Q. Hadley sur, td 3394 ft, csg set 3386 ft, wocs. Wrightsman Oil Co.'s A. J. Kimball 1, S. Winship sur, sd 1800 ft.

BEXAR COUNTY — American Gas Co.'s Oliver 5, 2000 ft el, 1750 ft sl of 400-ac tr, M. F. Rodriguez sur, owdd, old td 2220 ft, now dr 2540 ft in Glenrose, standard tool job. N. G. Carter's J. F. & F. X. Bilhartz 1, Rolen sur No. 48, sd 650 ft. Dorine Oil Co.'s S. Tudyk 1, F. Cardinas sur, coring 1852 ft, top Edwards lime 1849 ft. M. A. Frederich's Fee 1, F. Recarde sur, fsh 1302 ft. Jones & Keiffer's E. W. LaGrange 1, F. Rolen sur, fsh 1010 ft for bailer. S. J. LeComte's Mayfield Park 1, sd 362 ft. McPhee & Briggs's Florence Lamb 1, M. de Luna sur No. 4, sd 1560 ft. Mid-Tex Pet. Co.'s Walker 1, A. N. Dodie sur No. 79, lot 21, lcn. Noble & Aiken's R. W. DeVilbiss 1, Martinez sur, sd 2230 ft. Geo. O'Neill et al's Holly Crouch 1, M. Gotari sur, dr 1435 ft. Carroll C. Raborn's A. B. Stephens 1, Peter N. Hays sur, dr 410 ft; Claud McCauley 1, Wm. Harris sur No. 52, dr 115 ft.

CALDWELL COUNTY—H. H. Coffield's C. C. Franks 1, Edwards Brown sur, coring 2940 ft. Exploration Dev. Co.'s W. T. Mooney 1, S. Seal sur, dr 1175 ft. R. Y. Walker's J. M. Walker 1B, S. Seal sur, td 2556 ft, ru to pump in pb hole 2343 ft; Walker Bros. 2, S. Seal sur, ru.

CALHOUN COUNTY — Continental Oil Co.'s American Nat'l Realty Co. 2, ne ne sec 6, blk C, P. Garcia sur, dr 3720 ft. Halliburton Oil Prod. Co.'s D. Burton 1, M. Sanches sur, set sur csg, wocs. Adrian Moore's McAster 1, 330 ft sel and nel 213-ac tr, M. Sanchez sur, prep to mim. The Texas Co.'s Blardone 1, S. Shupe sur, dr 2780 ft; R. Duelburg 1, M. Sanchez sur, dr 3800 ft Martin 1, Florentina Garcia sur, ru; W. H. Wehmeyer, M. Sanchez sur, dr 4175 ft.

DE WITT COUNTY—Stewart & Egan's R. Kleberg 1, J. J. Tumlinson sur, set 10 in csg 80 ft, wocs.

DUVAL COUNTY — Bridwell Oil Co.'s Sutherland 2, 990 ft sl, 1650 ft el of sur 122, near Hoffman field, ru. Conway & Buescher's A. H. Hoffman 2, sec 116, dr 2100 ft. Harvey & Henderson's Chernoskey 1, sec 226, td 2650 ft, pb 2225 ft to test sand 2220-25 ft. Intrepid Oil Co.'s Parr 2, sec 115, ru, dr water well. L. & H. Oil Co.'s C. W. Hahl 2, sec 64, set csg 2525 ft, dr out plugs. Magnolia Pet. Co.'s Bennett 1, sec 441, prep to sp. G. G. Mortimer's Peters 2-B, sec 196, test sw 2555 ft, dd, sand 2474-80 ft, dst 125 ft oil, very small amount pressure. D. H. O'Byrne's Ball 1, 330 ft sl and wl nw sec 2, Agua Poquita gr, 2 mi sw Sweden, mir. Santa Clara Oil Co.'s Wood-Welder 1, sec 385, dr below sur csg. Tex-La Oil Corp.'s Hubbard 1, sec 84, dr 2575 ft.

FALLS COUNTY—Adams et al's Walker 1,

3345 ft nel, 150 ft nwl Pedro Garza sur, 3 mi n Chilton, sd 870 ft.

FRIO COUNTY—Amerada Pet. Corp.'s W. H. Smith 1, Joseph B. Mason sur No. 322, 4½ mi sw Pearsall field, dk.

GOLIAD COUNTY—Service Drlg. & Royalty Corp.'s Woods & Young 1, 10 mi s Goliad, mim.

GONZALES COUNTY—Southwestern Dev. Synd.'s W. S. Atkinson 1, S. Y. Reims sur, dr 5740 ft.

GUADALUPE COUNTY — Gode et al's Hicks 1, 150 ft sl, 320 ft el 189-ac tr, E de los Santos Coy sur, nw part of county, lcn, to dr with large spudder. A. D. Locke et al's Mrs. N. S. Lowman 1, Cyrus Campbell League, td 1810 ft, ru rotary. Mineral Corp. of Texas' Allen Phillips 1, Cortines sur, 10 mi sw Seguin, ru. Port Isabel O&G Co.'s Emil Leissiner 1, Davis sur, sp. W. A. Scrutchin's A. H. Smith 1, 1350 ft nel, 150 ft sel 34-ac tr, J. B. Cowan sur, w Staples, lcn. Suttle et al's Baenzunger 1, A. O. Manchola sur, sd 2155 ft. L. E. Trout's Murtle McKee 1, Green Dewitt sur, fsh 3090 ft.

HIDALGO COUNTY—D. M. C. Oil Co.'s Daskam 1, blk 34, por 45, td 4114 ft, ran electric formation testing device, prep to set csg, sand 4090-4100 ft, gas, lime cap 4100-4102 ft, sand, sandy shale streaks 4102-14 ft, showing oil. E. H. East's F. M. Carter 1, blk 19, Retama sub, Del Tule sub, coring 1800 ft. Earl C. Hankamer et al's Frank Rabb 1, Laguna Seca League, dr 4825 ft. Union Sulphur Co.'s American Rio Grande Land and Irrigation Co. 3, lot 2082, block 86, N. Capisallo District, Llano Grande gr, sand 7477-93 ft, dr plugs and run tubing, prep to comp.

JACKSON COUNTY—Shell Pet. Corp.'s McCrory 1, sec 15, Morris and Cummings sur, sd 5548 ft.

JIM HOGG COUNTY—Miller et al's Yeager 1, blk 6, sec 20, sd 3100 ft.

JIM WELLS COUNTY—A. M. Hagan et al's Robert Adams 1, 1320 ft nl, 330 ft sl of sur 10, 2 mi sw Alford, lcn. O. W. Killam's W. D. Wade 5, 1285 ft sel, 1640 ft nel blk D, S. A. Agua Dulce sur, dr 3500 ft, 2900-foot sand showed gas. Joe Lundin's T. C. Hewitt 1, sec 51, R. P. Haldeman sur, dr below sur csg. Magnolia Pet. Co.'s A. A. Seeligson 6, V. Canale sur No. 218, sd 3899 ft for orders.

KARNES COUNTY — Harvey & Henderson's Paul Jauer 1, A. Borscheimer sur, dr 2989 ft. Luling O&G Co.'s W. W. Boyce 1, S. D. Still sur, sp. W. C. McBride, Inc.'s N. B. Boultinghouse 1, 660 ft sel and swl of tr in Menefee sur, tentative lcn for test. H. A. Pagenkopf's McAda 1, Carlos Martinez sur, dr 4205 ft.

KERR COUNTY—Jeff Love & Eastland Oil Co.'s Jeff Love 5-E, J. Martinez sur, sec 1594, dr 5240 ft.

LA SALLE COUNTY—S. Killingsworth's L. Yeager 1, 100 ft wl 300 ft nl lot 10, blk 5, sur 94, dr 425 ft.

LAVACA COUNTY—L. A. Douglas's Fehrenkamp 1, M. Mitchell sur, dr 1965 ft.

LIVE OAK COUNTY—Baugh & McMillan's Walton & Campbell 1, D. R. Fant sur, dr 3625 ft. Henderson Coquat's L. A. Reagan 1, 2790 ft wl, 330 ft sl McGloin sur, mir; H. E. Rex 1, GH&H sur No. 1, dr 2100 ft. Smith & Storey's Dinero Town Tract 1, center 6-a tr, Jane Curry sur, nw offset discovery well, ru. J. O. Whittington et al's Little 1, M. M. Shipp sur, td 5758 ft, pb and perf 4380-93 ft, swabbing, show little o&g.

McMULLEN COUNTY — Henderson Coquat's Ezzell 1, 2000 ft sel and midway between nel and swl of D. R. Fant sur, mir. Howeth & Swiger's Rhodes Ranch 1, sec 22, M. F. Lowe sur, sd 2760 ft for water. Texio Oil Co.'s Atkinson 1, sec 13, Martha J. Dean sur, 4½ mi n Henderson and Harvey test, mir.

MEDINA COUNTY—Dupree & West's J. A. Mott 1, 810 ft nl, 100 ft el of J. Ball sur, No. 1478, dr 40 ft flat rock. W. T. Shoemaker's Noonan, se cor Michael Simon sur No. 349, dr 210 ft.

MILAM COUNTY—Gates et al's Johnson 1, 330 ft swl, 480 ft nl of ne 100 ac Johnson tr, J. J. Acosta sur, sd 1620 ft.

NUECES COUNTY—A. F. Holliday's Stillwell 2, blk 31, Sheppard Farm Lots sub, dd from 1000 ft. J. K. Sutton et al's Sagarin 3, CEPI&M sur, coring 4590 ft. Southern Minerals Co.'s Rand Morgan 1, Eliott sur, sp. Texon Oil & Royalty Co.'s Buckholt 1, J. Ward sur, dr 4525 ft.

REAL COUNTY—H. J. Heartwell et al's L. J. Haby 2, AB&M sur No. 175, dr 2850 ft.

REFUGIO COUNTY—Humble O&R Co.'s Mrs. M. M. Marberry 1, J. Dunn sur, hole straight 3062 ft, prep to re-dr. Magnolia Pet. Co.'s Mattie Wood 1, S. Turner sur, dr 6210 ft, shale.

SAN PATRICIO COUNTY—Humble O&R Co.'s Welder 1, lot 4, A&O sub, Villareal gr, sd 7131 ft, ran electric formation testing device, probably will abnd. A. E. Masterson et al's W. A. Wurzbach 1, C. C. Hornsby sur, coring 5435 ft. Plymouth Oil Co.'s Welder 3-A, J. M. Portillo sur, td 5437 ft, cleaning, ⅛ in ch on tubing showing considerable oil, tp 1000 lbs. cp 1400 lbs.

STARR COUNTY—Armstrong, Emanuels and Adams' Starr County Cattle Co. 1, blk 57, JL sub, por 89, td 2725 ft, re-set liner and screen to test again. C. R. Borah et al's A. Guerra 1, sh 6, San Jose gr, coring 2870 ft. John Clopton's D. L. Tijerina 1, blk 14, sh 14-C, por 80, ru to dd from 1750 ft. Conroe Drlg. Co.'s 1-A, 314 ft sel, 330 ft nel of blk 35, J. N. Crawford sub, por 56, corrected lcn, dr 1353 ft. R. G. Hall's Doyno & Chatfield 1, blk 13-C, tr 21, por 80, dr 1315 ft. Hughston Oil Co.-Wood-Gregg 1, por 84, ru and lay water line. Hirlam Reed's Block Bros. 1, blk 4, tr 28-A, por 80, td 1500 ft, ran electric formation testing device, set csg to td, to perforate opposite shows. Sunray Oil Co.'s Munoz 1, por 75, dr 950 ft.

TRAVIS COUNTY—J. M. Hickey's A. Lind 1, 150 ft swl, 820 ft sel of 85-ac tr, M. Winburn sur, lcn.

VICTORIA COUNTY—Costa Oil Co.'s J. E. Schovajsa 1, 330 ft nel and nwl of lot 14, Rupley sur, ab 290, mim. Gillespie & Superior's Brandt 1, 330 ft nwl and nel of lot 11, Rupley sub, lcn; Henderson and Pickering 2, 330 ft sel and nel of lot 6, Nancy Dean sur, ru; J. Janis 1, 330 ft sel and nel lot 9, Nancy Dean sur, lcn. The Texas Co.'s A. M. McFaddin 9, J. M. Rine sur, dr 2875 ft. Trans-State Oil Co.'s Robt. Kanster 1, 330 ft sel and nel of 52½-ac tr, R. Manchola gr, west outpost well, Coletto Creek field, mim.

WEBB COUNTY—Carolina-Texas Oil & Gas Trust's Benavides 11, ne sec 683, sand 4930-60 ft, prep dst; Barnhart 1, sec 262, de la Garza sur, td 2405 ft, sd to re-bld dk. Gates Ranch Oil Co.'s Gates 5, sec 62, dr 650 ft. O. W. Killam's A. M. Bruni Est. 32, blk 28, sec 8, Arispe gr, s outpost of Bruni townsite area, Cole field, td 3446 ft, pb 2472 ft and sd for orders. Payne et al's Hoggterp 1, blk 6, sec 1110, coring 1760 ft. Arthur H. Wray's Geo. Stuempke 1, share 1, Brewster Pasture, Joaquin Galan Grant, dr 950 ft.

WILLACY COUNTY — King Woods Oil Co.'s Stillman Ranch 1, lot 16, blk 30, sh 44, Stillman Ranch sur (was W. W. Silk), sp. South Texas Dev. Co.'s Francisco Armendiez 1-A, Little Share 4, dr 3250 ft.

WILLIAMSON COUNTY—J. A. Harper's Seggern 1, 150 ft sl and wl 101-ac tr, J. Bevil sur No. 56, mim. J. Morgan Russell's A. J. Nelson Est. 4, 450 ft sl and 1220 ft el of J. J. Justice sur No. 2, 550 ft nwl No. 1, td 340 ft.

WILSON COUNTY—Universal Oil Co.'s O. F. Burney 1, Arocha sur, sand 595-635 ft, completing.

ZAPATA COUNTY — Allen & Morris' F. Pena 1, 330 ft sel and swl of sh 19, por 19, 1.2 mi e Lopena field, mir. Danvers & Harrison's N. J. Vela 1, blk 7, Vela sub, por 29, dr 2275 ft. E. L. Smith Oil Co.'s R. Hinnant 1, blk 27, sec 307, mir.

EAST TEXAS BORDER COUNTIES

HARRISON COUNTY—Roy C. Swails et al's Bonnie Pitts 1, sec G. W. Martins sur, resetting 10-in csg, td 170 ft. Hanover, Bergendall et al's Buchanan 1, W. M. McIlvain sur, sd 3682 ft.

MARION COUNTY—Ed S. Holman's Lizzie Henderson A-1, R. Bennington sur, setting 4½ in tub. 6⅝ in csg 1919 ft, top PG, after pb to 2445 ft.

PANOLA COUNTY—Payne Drilling Co.'s J. Liston 1, East T. Hill sur, lcn abd. J. L. Cadrin's Robt. Johnson 1, J. Johnson sur, dk. Harry Flinchbaugh and J. E. McAneny's M. G. McCormick 1, Jas. P. McAdams sur, rur. G. F. Hudson's J. F. Nail 1, C. McCrary sur, arr to deepen, td 2327 ft. Geo. Le Grand's P. J. Laidleigh 1, A. Thompson sur, sd 55 ft; S. B. Wallace 1, A. M. McLaughlin sur, rur.

SABINE COUNTY—Smithsonian Pet. Co.'s J. Hamilton 1, Jno. Haley sur, spd, dr 600 ft.

SHELBY COUNTY—I. M. Bradley et al's J. J. Ashberry 2, J. M. Mitchell sur, 6⅝ in csg 2960 ft, sd 3250 ft. C. E. Litchfield et al's W. C. Windham 1, A. H. English sur, lcn.

TEXAS GULF COAST

ANGELINA COUNTY—Lee-Tex Oil Co.'s A. H. Geisler 1, nw of Lay, S. J. Thompson sur, dr shale 1120 ft. Koch & Duffey's L. W. Alberry 1, near Diboll, J. A. Prado sur, abd 2020 ft. Pioneer Exploration Co.'s S. L. & B. L. Huffman 1, ne of Lufkin, S. Donegan sur, dr shale 420 ft.

AUSTIN COUNTY—Arkansas Fuel Co.'s Otto Huedner 1, 5 mi n of New Ulm, R. Stolze sur, abd 4005 ft. Deering & Kayser's T. A. McClenton 1, se of Bellville, T. Bell sur, dr shale 320 ft.

BRAZORIA COUNTY—C. E. Holt's Griffith 1, J. B. Bailey sur, workover, abd 6010 ft, old total depth 5890 ft. Texas Co.'s Freeport Sulphur Co. 1, Areola Survey, dr shale 3730 ft. Turnbull & Irwin's Oliva Allison 1, Fresno Area, H. & T. B. sur, sec 79, center of lot 36, dr shale 2275 ft.

COLORADO COUNTY—Gulf's A. R. Milentz 1, se of Rock Island, I. & G. N. sur, sec 33, mim.

GRIMES COUNTY—Anderson & Kerr's A. Lueder 1, sw of Plantersville, B. Brantely sur, dr shale 3940 ft. W. B. Roan et al's G. W. Sealy 1, sw of Kellum Springs, B. F. Smith sur, sd 2980 ft.

HARDIN COUNTY—Jack Frazier's Sternenburg 1, nw of Kountz, J. Pearson sur, ru.

HARRIS COUNTY—Johnson & Stanolind's Fee Land 1, s Houston, H. & T. B. sur, dr shale 4705 ft. West Production Co.'s O. P.

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JASPER COUNTY—Republic's Sabine Tram Co. 1, ne of Buna, H. & T. C. sur, fsh 7260 ft.

LIBERTY COUNTY—Jack Frazier's Lynott Buffon 1, J. Robeson sur, abd 7380 ft; Lynott Buffon 2, 7500 ft e of Buffon 1, J. Robeson sur, dk. Liberty Independent Oil Co.'s J. M. Neal 1, S. Strong sur, dr shale 4050 ft.

MONTGOMERY COUNTY—Gholson et al's Parker 1, nw of Willis, J. Lindley sur, mim.

WALKER COUNTY — S. E. Grey's C. Weinzell 1, se of Riverside, J. J. Porter sur, dr lime 4010 ft.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Rice Milling Co. 1, s of Crowley field, sec 27-10s-2e, ru up casing tool, 7826 ft.

AVOYELLES PARISH—Southern Star Pet. Co.'s I. G. Boyette 1, sec 28-3n-5e, sd 3875 ft high water.

BEAUREGARD PARISH—C. & K. Drlg. Co.'s Long Bell Lbr. Co. 1, w of Ludington, sec 26-2s-8w, moving in heavy material, 2736 ft.

CALCASIEU PARISH—Nichols McCaleb's Gray 1, 9 mi nw of Starks field, sec 22-8s-13w, sd 860 ft. Buhler Oil Co.'s Faist 2, 900 ft se of No. 1, sec 26-8s-10w, sd 2110 ft.

CAMERON PARISH—Magnolia's Broussard 1, sec 13-12s-9w, dr shale 4678 ft.

EAST FELICIANA PARISH—Thompson Creek Oil Co.'s Fanny Noland 1, on e bank of Thompson Creek, sec 70-1s-1w, dr shale 1535 ft.

IBERIA PARISH—Texas Co.'s State Lake Fausse Point 1, n flank of dome, sec 35-11s-8e, dr shale 2670 ft.

JEFFERSON PARISH—Lincoln Oil Co.'s Rigaud 1, Grand Island, sec 28-21s-25e, sd 7039 ft. Texas Co.'s Bayou St. Denis 1, 6 mi se of Lafitte, sec 19-17s-24e, taking a six foot core at 9541 ft after showing oil.

ST. BERNARD PARISH — Emerald Pet. Co.'s Lake Eugene Land Co. 1, on s edge of Lake Borgne, sec 32-13s-15e, dk. John Danciger's Battles 1, near Oliver, sec 135-14s-14e, moving in extra boiler, td 6001 ft.

ST. LANDRY PARISH — C. B. Bunte's Thistlewaite Lbr. Co. 1, Washingotn prospect, sec 68-5s-4e, mim.

ST. MARTIN PARISH—Texas Co.'s State Blum Bob 1, Henderson prospect, sec 9-8s-7e, dr shale 7011 ft.

ST. MARYS PARISH—Edwards Drlg. Co.'s Chetemaches 1, near Charention, sec 34-13s-9e, abd 8501 ft.

TANGIPAHOA PARISH—R. A. Conklin's Lake Superior Piling Co. 1, sec 19-5s-9e, dr sand 4284 ft.

NORTH LOUISIANA

BIENVILLE PARISH—N. V. Duncan et al's J. M. Hutton 2, nw ne sw 4-18n-7w, spd. Saline Drilling Co.'s Pardee 1, ne ne 27-14n-6w, sd 3819 ft sandy shale.

BOSSIER PARISH—W. A. Kirklin, Tr.'s Garrett & McKellar 1, se nw nw 3-21n-13w, sd 1700 ft. Plain Dealing Synd.'s S. H. Bolinger Lbr. Co. A-1, sw se nw 31-23n-13w, dr 2765 ft. Richplain Oil Co.'s Gaines 1, nw nw 22-22n-13w, wocs 10-in csg 42 ft. Scott & Howard's Sherrill 1, nw sw 13-18n-12w, ru and sd. L. R. Skidmore's Davis 1, se se 12-18n-13w, sd 1250 ft.

CADDO PARISH—Ed Bailey et al's Hartzo 1, ne nw 28-22n-15w, sd 1230 ft. W. T. Bell et al's Bostick 1, sw sw 12-22n-16w, sd 2780 ft. Simplex Oil Co.'s Keith 1, sw se 18-20n-14w, dk. A. F. Tarver's George 1, sw ne ne 23-19n-15w, rur.

CATAHOULA PARISH—Phillipi et al's La. Cent. Lbr. Co. A-1, 2-9n-6e, dr 804 ft.

CLAIBORNE PARISH—K. C. Bundy's J. King 1, 12-21n-7w, dk. E. T. Oakes et al's Patton Est. 1, ne ne 1-20n-5w, rur.

DE SOTO PARISH—E. B. Bird et al's A. D. Johns, Jr., 1, se nw 20-14n-16w, elev 290 ft, top Nacatosh 1229 ft, top Blossom 2105 ft, arr core 2590 ft. Century Oil & Drlg. Corp.'s J. M. Norton 1, sw se 27-11n-14w, si, td 2825 ft. Flesh & Hootkins' J. S. Farmer 1, nw se ne 14-12n-14w, wocs 10-in csg 150 ft. P. G. Frailey et al's J. E. Stell 1, 5-12n-16w, rur. Ed Saffold et al's T. D. Thigpen 1, ne sw ne, dk.

EAST CARROLL PARISH—Century Oil & Drlg. Corp.'s Olivedell Pltg. Co. 1, 56-21n-12e, cemtd 10-in csg 285 ft. O. G. Collins et al's H. L. Hunt 1, cent. 26-22n-13e, mim.

MADISON PARISH—Frazier et al's Frazier 1, nw se se 23-17n-10e, dr 3005 ft. Southern Land & Explo. Co.'s Deltic Inv. Co. 1, nw nw 1-17n-12e, mim.

MOREHOUSE PARISH—C. I. Bacon et al's Crossett Lbr. Co. 2, se sw 36-23n-6e, dk. Alex Rice, Tr.'s Meyers 1, nw se nw 15-22n-7e, spd dr 325 ft.

NATCHITOCHES PARISH—Clyde Creighton's Friedman Est. 1, swc 52-7n-6w, co to deepen, td 2935 ft. Edwards & Turner's Prudential Life Ins. Co. 1, nw nw 26-10n-6w, dk. Leslie Prod. Co.'s Tom Moffitt 1, se nw 19-10n-10w, lcn. Missouri Drlg. Co.'s Brown Lbr. Co. 1, se se 5-10n-10w, co to deepen, td 1033 ft. B. E. Taylor's DeBlieux 1, nwc 83-10n-7w, rur.

RAPIDES PARISH—Luther C. Terrell's Chas. Armstrong 1, se se 24-5n-1w, sd 2190 ft.

RED RIVER PARISH—Sterling O&G Co.'s Long-Bell Lbr. Co. 1, se ne se 19-13n-9w, sd repr rig 2930 ft.

SABINE PARISH—M. T. Hines' J. B. Hill 1, sw ne 4-6n-11w, sd 2240 ft. Laurel Pet. Co.'s Long-Bell Lbr. Co. 1, sw sw 14-8n-14w, 10-in csg 56 ft, dr 1300 ft.

WEBSTER PARISH—Virgil Likens' E. L. Stewart 1, nw nw 25-18n-10w, arr sdtr junk, td 1900 ft.

ARKANSAS

ASHLEY COUNTY—Glen E. McFadin et al's Bovine Farms 1, ne ne 1-18-8w, elev 178 ft Nacatosh sand 2767-80 ft, fsg ds, td 2798 ft shale.

CALHOUN COUNTY—The Hunter Co.'s Stout Lbr. Co. 1, nw ne 33-16-13, lcn.

COLUMBIA COUNTY — Southern States Gas Co.'s Pine Woods Lbr. Co. 1, sw ne nw 10-20-22, 10-in csg 200 ft, dr 950 ft.

GRANT COUNTY—W. E. Neill & H. Winters' R. W. Cooper 1, sw se 26-6s-15w, spd 10-in csg 100 ft, sd 1710 ft.

HEMPSTEAD COUNTY—F. W. Martin et al's A. J. Lafferty 2, se nw 17-14-24, rur.

LA FAYETTE COUNTY—W. H. Harvey's R. F. Allen 1, ne se sw 13-19-25, dk. Larry Romine's Nolte 1, ne ne nw 11-19-26, rur. Transportation Pet. Co.'s Red River Lbr. Co. 1, sw sw 26-19-25, elev 250 ft, top Nacatosh 1804 ft, top Blossom 2740 ft, dr 3302 ft; Cochran Est. 1, ne se 26-19-25, lcn.

LONOKE COUNTY—J. C. Strahan's Hardin 1, nw nw 18-2s-7w, fsg, td 2323 ft.

MILLER COUNTY—C. J. Hodges et al's Commercial Nat. Bank 1, sw ne se 30-17-28, dk. King Oil Corp.'s E. G. Anderson 1, nw sw ne 16-14-27, sd 2200 ft. Lee Timberlake's Frost Lbr. Co. 1, sw sw se 27-15-26, dr 3080 ft.

NEVADA COUNTY—Carnett et al's Floyd Munn 1, 16-14-22, sd 50 ft.

OUACHITA COUNTY—Kraft Oil Corp.'s Rath & Cartier 1, sw sw sw 32-13-17, sd 1853 ft. Chas. Steele et al's Myar Est. 1, 16-13-18, wocs 10-in csg 100 ft.

SEVIER COUNTY—Pendleton & Vaughan's Harris Est. 1, 34-9-30, dr plug in 8-in csg 1155 ft, td 1320 ft.

UNION COUNTY—Gulf Ref. Co.'s Werner Lbr. Co. 49, sw nw sw 5-16-16, 10-in csg 2293 ft, dr 5210 ft hd gray sand. H. L. Hunt, Inc.'s E. F. Gregory 15, se se 10-17-14, elev 180.4 ft, 7-in csg 5834 ft, base red beds 5937 ft, top Permian rock salt 6816 ft, arr make Schlumberger test in salt, td 6911 ft. Joe Modisett et al's D. G. Sturdivant 1, se se 6-18-13, sd 4016 ft sandy lime. E. O. Olds' Telford 1, nw nw 35-17-15, wosr, td 2211 ft. Reuter Oil Co.. Inc.'s Kinard 1, nw se nw 32-18-14, wosr, td 2196 ft; Vines 2, nw sw se 29-18-14, wosr, td 2216 ft. Urbana-Union Oil Co.'s Union Sawmill Co. 1, nw sw 34-17-14, 10-in csg 150 ft, sd repr rig, td 3620 ft.

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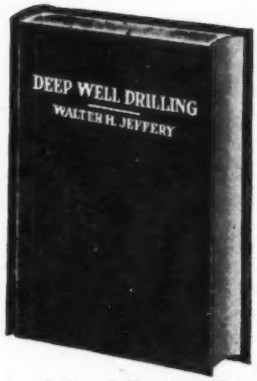

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3301 BUFFALO DRIVE **HOUSTON, TEXAS**

MISSISSIPPI

BOLIVAR COUNTY — White & Jones' Ballou 1, sw ne ne 18-24n-7w, sd for surf cas.

CLARKE COUNTY—L. Beckwith et al's Long-Bell Lbr. Co. 1, sw se 10-2n-16e, elev 378 ft, rur.

JONES COUNTY—Snow-Black Pet. Co.'s Fox 1, se se sw 30-7n-12w, fsg ds, td 4005 ft.

LAUDERDALE COUNTY — Dalton Dev. Co.'s Bounds 1, nw ne 3-6n-15e, sd 1600 ft.

MADISON COUNTY—Cleve Love et al's P. F. Simpson 1, nw nw 30-8n-1w, lcn.

MONROE COUNTY—P. J. McAlpine et al's Crook 1, ne ne 4-13s-18w, arr core 2338 ft.

MONTGOMERY COUNTY—D. C. Shaffer et al's Fee not given, 31-19-7w, lcn.

RANKIN COUNTY — Cleve Love et al's Boehle 1, nw ne 18-5n-2e, 10-in csg 100 ft, dr 150 ft..

SIMPSON COUNTY—Berry Corp.'s R. T. Berry 2, sw sw 32-2n-4e, dr 2375 ft marl (corrected depth).

STONE COUNTY—Gulf Ref. Co.'s Dantzler Lbr. Co. 7, se se 36-3s-11w, elev 170 ft, cemtd 7-in OD csg 5470 ft, top Selma chalk, dr 5505 ft chalk.

WARREN COUNTY—Harry W. Elliott's R. L. Parker 2, nw nw 14-14n-1e, elev 80 ft, sd high water 1602 ft.

ALABAMA

COVINGTON COUNTY—Geometer Prod. Co.'s A. B. Culbreth 1, sw sw ne 8-2n-14e, dr 5100 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 1, sw nw sw 9-3n-29e, co 2506 ft.

LAMAR COUNTY — DeSoto O&G Co.'s Gardner 1, nw nw 22-15-16, repr rig to deepen, td 4182 ft.

FLORIDA

HILLSBOROUGH COUNTY — Southern Pet. Co.'s Mizell & Williams 1, 4-32s-25e, elev 120 ft, installing new engine, td 2100 ft.

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 1, se se 17-24s-25e, elev 110 ft, re-landing 12-in csg, td 455 ft.

MICHIGAN

MIDLAND COUNTY—J. V. Wicklund's Neal 1, 16n-2w-13, acidizing, td 4026 ft, testing. Goll-Graves-Mechling's Oviatt 1, 16n-2e-24., ur 2300 ft. Atha Oil Co.'s LaLonde 1, 13n-1e-27, acidized, 150 ft oil in csg, depth 3490 ft, testing. Howard Patterson's Haskins 1, 13n-2e-26, sd 3739 ft, sw.

ISABELLA COUNTY — McClanahan Oil Co.'s McRae 1, 15n-3w-13, ru. United Driller's Vandercook 1, 15n-3w-24, rig.

MONTCALM COUNTY — L. E. Duvall's Eicknorch 1, 11n-10w-13, sd 1343 ft. Fred Turner et al's Conkie 1, 10n-5w-10, br. T. F. Caldwell's Robins 1, 10n-5w13, rig; Ingersol 1, 10n-5w-14, br. Gordon Oil Co.'s Frost 1, 10n-5w-3, sp; Smith 1, 10n-5w, se sw sw-1, br. McClanahan Oil Co.'s Flint 1, 10n-5w-11, dr 300 ft. J. W. Leonard, Jr.'s West 1, 10n-5w-11, dr 600 ft; West 2, 10n-5w-2, lcn; West 3, 10n-5w-11, lcn. Eastern Gulf's Barger 1, 10n-5w-2, dr 690 ft; Hoover 1, 10n-5w-12, lcn. Daily Crude Oil Co.'s Tow 1, 10n-5w-2, dr 350 ft. Rowmor Oil Corp.'s Durbin 1, 10n-5w-2, lcn. Strange Oil & Gas Co.'s Day 1, 10n-5w-nw ne nw-14, lcn. Burnstein Oil & Gas Co.'s Keel 1, 11n-5w, se se se-35, mim. C. R. Gallagher's Lindsay 1, 10n-5w, nw se ne-13, lcn. Taggart Brother's Smith 1, 10n-5w-1, 10-in csg 500 ft, dr 700 ft.

GRATIOT COUNTY — Evans & Kelly's Pencak 1, 10n-4w-18, sp. T. F. Caldwell's Federal Land Bank 1, 10n-4w-18, lcn. John Melvin's Shaver 1, 10n-4w-4, ru. Columbia Oil and Gas Co.'s Davenport 1, 10n-4w-7, lcn. McClanahan Oil Co.'s Akin 1, 10n-4w-17, mim. Mammoth Petroleum Corp.'s Graham 1, 11n-4w-31, rig. Newark Oil and Gas Co.'s Beck 1, 10n-3w-29, sp. Wicker & Munger's Kellog 1, 10n-3w-17, lcn. C. R. Gallagher's Weidbrank 1, 10n-4w, nw nw sw-19, lcn; Ranger 1, 10n-4w, nw se sw-6, lcn; Akin 2, 10n-4w, nw se ne-17, lcn; Whitman 1, 10n-4w, sw nw sw-9, lcn; Burtrow 1, 10n-4w, sw se se-7, lcn; Chamberlin 1, 10n-4w, nw nw sw-17, lcn; Smith 1, 10n-4w, sw sw se-18, lcn.

GLADWIN COUNTY—M. F. Whitehill's Spicer 1, 17n-2w-11, dr 3300 ft. Sun Oil Co.'s Hines 1, 17n-1w-31, fsg 3805 ft. Beaverton Oil & Gas Co.'s Ross 1, 17n-1w-7, dr 2600 ft.

MISCELLANEOUS — CLARE COUNTY: Sun Oil Co.'s Becker 1, 18n-3w-2, dr 1500 ft. ROSCOMMON COUNTY: Black Diamond Oil Co.'s Vaughan 1, 24n-4w-28, sd 3750 ft. OGEMAW COUNTY: Lupton Oil Co.'s Rakestraw 1, 24n-3e-35, rig. Thompson Bros.' Mills Est. 1, 21n-4e-31, rig. MECOSTA COUNTY—Jetter Oil Co.'s Parsley 1, 14n-10w-19, dr 850 ft. Jasmid Oil Co.'s Coopersville Bank 1, 13n-10w-22, sd 850 ft. SAGINAW COUNTY: Chapin Oil Co.'s Sutlif 1, 9n-1e-16, sd 2926 ft. LAPEER COUNTY: Hadley Oil Co.'s Haplin 1, 7n-9e-36, dr 180 ft. ST. CLAIR COUNTY: Marine Oil Co.'s DeSnyder 1, 4n-16e-34, dr 130 ft. P. D. Bornman's Boldt 1, 8n-16e-28, sd 500 ft. CLINTON COUNTY: Elba-Duplain Synd.'s Stratton 1, 8n-1w-4, sd 3018 ft. WEXFORD COUNTY: M. J. Ingold's Webb 1, 22n-9w-13, sd 600 ft. MASON COUNTY: Dragoon Dev.'s Young 1, 17n-15w-15, sd 1900 ft. HURON COUNTY: Wallace Markle's Opaka 1, 15n-11e-4, dr 1200 ft.

BULLETINS

Packers, Liner Hangers and Gun Perforator Service

Lane-Wells Company of Los Angeles has just completed a catalog of 74 pages, containing bulletins on packers, liner hangers and gun perforator service. A departure from usual catalog lies in the exceptionally complete "Applications" section in each bulletin, containing, in addition to the better known uses, many practical applications of each product not generally known to the industry at large. Copies of the catalog will be furnished to production men who write to Lane-Wells Company, 4439 Santa Fe Ave., Los Angeles, California.

Pumping Units

Worthington Pump and Machinery Corporation, Harrison, New Jersey, has issued a bulletin describing its self-priming, "Monobloc" pumping units of the centrifugal, electrically driven type.

Pipe Tools

Beaver Pipe Tools, Inc., Warren, Ohio, has ready for distribution an attractive bulletin which describes the pipe tools it manufactures.

Mud Screens

Allis-Chalmers Manufacturing Company, Milwaukee, has issued a four-page leaflet No. 2198, describing the "shale shaker," or mud screen manufactured by the company.

Tractors

Caterpillar Tractor Company, Peoria, Illinois, has issued an attractively illustrated condensed catalog showing its complete line of "Caterpillar" track-type tractors, blade graders, elevating graders, road maintenance machines, terracers, power units and industrial engines.

Bearings

The Timken Roller Bearing Company, Canton, Ohio, has issued a news release and drawings to show that Timken bearings are easily removed from split housing assemblies. Five drawings accompany the bulletin, which will be mailed to interested persons.

Bearings

Bronzoid Lead Corporation, manufacturers of Bronzoid treated lead for bearings, bushings, etc., tells the story in pictures and descriptive matter of this product in a three-color four-page folder, titled "The Answer to Your Bearing Problems," recently off the press. Publication of this literature follows a year of tests on Bronzoid treated lead, and the results of tests both in shops and fields are given. Microphotos showing the better distribution of lead under the new process of producing bronze alloy bearings and bushings are reproduced and photographs of bearings made from Bronzoid treated lead illustrate, comparatively, the results obtained. The manufacturers will mail a copy of the folder to interested concerns, upon request to the home office, 501 Magnolia Building, Dallas, Texas.

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NEWS *from the* *Industry's* EQUIPMENT MAKERS

Kibele Appoints Southwest Texas Representative

Rudolf E. Schiefelbein has taken over the representation in Southwest Texas of all Kibele Manufacturing Company lines. He is maintaining headquarters in the building formerly occupied by the Kibele Company at 201 E. Cevallos Street, San Antonio, before the company moved its manufacturing plant and offices to Dallas. Associated with Mr. Schiefelbein is Alfred Brown.

Mr. Schiefelbein was connected with San Antonio Machine & Supply Company for 20 years in the well tool department and has a wide acquaintanceship among operators in his territory. He is stocking a full line of Kibele pistons, swabs and tubing catchers.

Oliver H. Attridge Appointed Chief Engineer of Lucey Products

Oliver H. Attridge, formerly chief engineer for Lucey Manufacturing Corporation of Chattanooga, Tennessee, has joined the organization of Lucey Products Corporation and will serve as chief engineer for the company. Mr. Attridge has had long experience in the designing and building of drilling equipment.

Alten Foundry & Machine Men Visit Gulf Coast Area

J. K. Shadwell, Mid-Continent sales representative, and A. C. Koenig, engineer, both of Alten's Foundry & Machine Company, Lancaster, Ohio, are completing a tour of the Gulf Coast country, in behalf of their company. They stopped over in Houston to attend the Oil Equipment & Engineering Exposition.

Carbide and Carbon Chemicals Corp. Opens New Whiting Plant

During March the new plant of Carbide and Carbon Chemicals Corporation at Whiting, Indiana, was placed in operation. The plant occupies part of a thirty-acre tract of land lying between the main lines of the New York Central and Pennsylvania Railroads, and faces a main motor highway between Chicago and the East. The plot selected allows ample space for expansion.

The completion of this plant is an additional important step in the development of the chemical industry in this country by this corporation. This development has grown out of fundamental research in organic chemistry originally started to investigate the possibility of manufacturing new products from hydrocarbon raw materials. The corporation now produces and sells a wide range of chemical products which are used extensively in many industries requiring solvents and related products.

In addition to the increased production from the Whiting Plant, the Corporation's manufacturing facilities at South Charleston, West Virginia, are being enlarged.

Foxboro Made Exclusive Agent For "Commercial" Orifice Fitting

Announcement has been received of the appointment of The Foxboro Company as sole distributors of "Commercial" Orifice Fittings, made by Commercial Iron Works of Los Angeles, California. The broad facilities for trained engineering service offered by The Foxboro Company will aid users to apply the fittings more successfully, in addition to the obvious advantages of securing undivided responsibility for an entire metering set-up.

An examination of Commercial Orifice Fittings will bring to light many advantages, state the manufacturers. The nuisance and expense of by-passes are eliminated entirely, and there is a decided saving in space. The threaded elevator lift permits lowering or lifting of orifice plates regardless of line pressure, without shutting down the line and with complete safety to the operator. Additional features such as the accurate centering of orifice plates and elimination of set screws in pressure areas, also are important.

Houston Oil Field Material Company Opens Port Lavaca Store

Houston Oil Field Material Company, Houston, Texas, announces the opening April 20 of a branch store at Port Lavaca, Calhoun County, Texas Gulf Coast, to serve the operators in this new field. This new store will carry not only the complete line of oil country supplies, but will stock the numerous specialties on which HOMCO has exclusive distribution in the Gulf Coast territory. The company's fishing and cutting tool service also is available through this new store, as through other HOMCO stores throughout the southwest.

Kibele Appoints Oklahoma-Kansas Sales Representative

Frank R. Gunn of Oklahoma City now is sales representative of Kibele Manufacturing Company in Oklahoma and Kansas. He will represent the company's full line of equipment including tubing catchers, swabs and pistons.

W. J. Jackson Joins Gas Power-Incorporated

W. J. Jackson, who has been petroleum engineer in the Gulf Coast division for Humble Oil & Refining Company, has resigned his position to accept a position as sales engineer for gas and air-lift equipment with Gas Power-Incorporated, Houston, Texas.

Three New Directors Named By J. & L. Stockholders

Three new directors were elected at the annual meeting of stockholders of Jones & Laughlin Steel Corporation April 23, one to fill a vacancy, and two to occupy the additional directorships created by action of stockholders at the meeting. The new members of the board are Dwight Clark, William B. Todd, and F. E. Fieger. Mr. Clark is treasurer of the Phillips Properties, Inc., owned by members of the Laughlin family.

William B. Todd was elected vice president as well as a director. He has been general manager of the corporation since 1931. F. E. Fieger, who since 1929 has been general manager, was made a director, a member of the executive committee, and vice president in charge of manufacturing operations.

Lukens Steel Company Moves New York City Offices

Lukens Steel Company, Coatesville, Pennsylvania, has announced the removal of its New York City offices to Suite 2714-15, Chrysler Building, 405 Lexington Avenue.

R. Y. MacIntyre Now With Link-Belt in Dallas Office

Announcement has been made by Link-Belt Company that R. Y. MacIntyre, who has served as company representative at Memphis, Tennessee, since 1932, has been transferred to the company's district office and warehouse at Dallas, Texas, where he will assist E. G. Wendell, local manager. MacIntyre has a wide acquaintance throughout the south.

FRANK S. ARGOOD of Cal-Tex Oil Company of California has returned to headquarters at Los Angeles from Texas where he drilled a wildcat, and he lost no time in starting two new wells at Long Beach .

New Equipment for the Field

Machinery .... Tools .... Catalogs .... Books

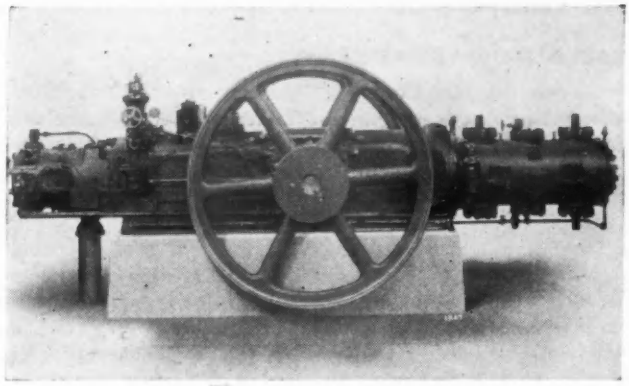
▼ ▼ ▼

Pumping Engine

COOPER-BESSEMER CORPORATION

Cooper-Bessemer Corporation, Mt. Vernon, Ohio, has announced the development of new uses for its pumping engines. Two sizes of pumping engines have been transferred from the usual category of single-purpose units, and have been made equally adaptable for pneumatic lift, repressuring and general power service in oil fields.

When a Type G-AG or Type G-AO pumping engine is ordered for well pumping on the beam or for central power pumping, the user has the option at a slight additional cost of specifying a "compressor main frame." In specifying this frame he prepares the unit for a possible future transition



Cooper-Bessemer Converted Pumping Engine

to pneumatic pumping. Though the engine may be placed initially in conventional pumping duty, the change into a direct-driven compressor unit may be effected at any later time by the simple addition of compressor cylinders and driving parts.

Any units thus transformed in the field will be identical with the Type G-MG and Type G-MO compressor units now available from the factory in completely assembled form. The smaller unit is rated 35 to 50 horsepower. The larger compressor unit is rated 45 to 65 horsepower. They can be equipped for any requirement of gas or air compression within its power range by using different compressor cylinders. While all parts such as power cylinder and head, piston, connecting rod and crosshead, mainshaft and fly wheels are interchangeable with standard pumping engines, the main frames and compressor drive parts have been designed to give balanced operation when operating as compressor units.

Pick-Up Pumping Unit

BYRON JACKSON COMPANY

Byron Jackson Company, Berkeley, California, has announced a centrifugal pick-up pumping unit that was designed especially for use by pipe line companies. It is suitable for service wherever a compact and portable unit is required. In developing the "Pup" (Pick-Up-Pump) for oil field work, the company incorporated a number of suggestions made by Wade R. Reed, Sinclair Prairie Pipe Line Company, and John M. McGregor, McGregor Engineering Company. The primary application of this new type pick-up pump is for pipe line service, but it may be used for water, fire protection and other duties of a gasoline-driven, medium-pressure pump.

The pump is a specially designed Byron Jackson, two-stage, centrifugal model, with an increased gear built integral with the pump. The gear housing and shaft centers are designed so that different gear ratios may be used to meet requirements. Two suction nozzles beneath and two discharge nozzles above are provided, all nozzles being on the same side of the pump. Connecting piping is supplied so that the two stages of the pump may be run either in series or parallel. The pump delivers up to 900 barrels per hour, and is capable of pressures in excess of 350 pounds per square inch. A flexible coupling is supplied.

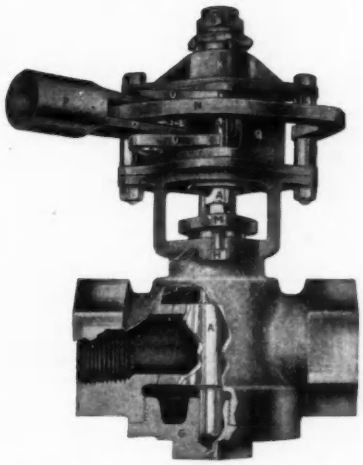
Engines recommended are Buda, Ford V-8 (commercial), Hercules and Waukesha. The units are supplied complete with al necessary accessories.

The complete units are assembled by and marketed through the McGregor Engineering Company, Tulsa, Oklahoma.

Plug Valve

GOLDEN-ANDERSON VALVE COMPANY

Golden-Anderson Valve Company, Pittsburgh, has introduced a new type plug valve that is particularly adapted for use on steam, air, gas and liquid lines. The manufacturer claims this valve will insure a smooth and continuous pipe opening in open position, and a securely sealed shutoff. Its construction for control of plug position, on opening and



Golden-Anderson Plug Valve

closing, eliminates rotating wear on the plug and seat rings, it is claimed. No lubrication or special attention is required.

The valve is available in two-way, three-way and four-way designs; in bronze, iron, steel or other metals for given requirements. It may be had in screwed or flanged ends, and in sizes from one-half inch up for all service pressures. It can be equipped with lever or handwheel, or can be

NEWS *from the* *Industry's* EQUIPMENT MAKERS

Kibele Appoints Southwest Texas Representative

Rudolf E. Schiefelbein has taken over the representation in Southwest Texas of all Kibele Manufacturing Company lines. He is maintaining headquarters in the building formerly occupied by the Kibele Company at 201 E. Cevallos Street, San Antonio, before the company moved its manufacturing plant and offices to Dallas. Associated with Mr. Schiefelbein is Alfred Brown.

Mr. Schiefelbein was connected with San Antonio Machine & Supply Company for 20 years in the well tool department and has a wide acquaintanceship among operators in his territory. He is stocking a full line of Kibele pistons, swabs and tubing catchers.

Oliver H. Attridge Appointed Chief Engineer of Lucey Products

Oliver H. Attridge, formerly chief engineer for Lucey Manufacturing Corporation of Chattanooga, Tennessee, has joined the organization of Lucey Products Corporation and will serve as chief engineer for the company. Mr. Attridge has had long experience in the designing and building of drilling equipment.

Alten Foundry & Machine Men Visit Gulf Coast Area

J. K. Shadwell, Mid-Continent sales representative, and A. C. Koenig, engineer, both of Alten's Foundry & Machine Company, Lancaster, Ohio, are completing a tour of the Gulf Coast country, in behalf of their company. They stopped over in Houston to attend the Oil Equipment & Engineering Exposition.

Carbide and Carbon Chemicals Corp. Opens New Whiting Plant

During March the new plant of Carbide and Carbon Chemicals Corporation at Whiting, Indiana, was placed in operation. The plant occupies part of a thirty-acre tract of land lying between the main lines of the New York Central and Pennsylvania Railroads, and faces a main motor highway between Chicago and the East. The plot selected allows ample space for expansion.

The completion of this plant is an additional important step in the development of the chemical industry in this country by this corporation. This development has grown out of fundamental research in organic chemistry originally started to investigate the possibility of manufacturing new products from hydrocarbon raw materials. The corporation now produces and sells a wide range of chemical products which are used extensively in many industries requiring solvents and related products.

In addition to the increased production from the Whiting Plant, the Corporation's manufacturing facilities at South Charleston, West Virginia, are being enlarged.

Foxboro Made Exclusive Agent For "Commercial" Orifice Fitting

Announcement has been received of the appointment of The Foxboro Company as sole distributors of "Commercial" Orifice Fittings, made by Commercial Iron Works of Los Angeles, California. The broad facilities for trained engineering service offered by The Foxboro Company will aid users to apply the fittings more successfully, in addition to the obvious advantages of securing undivided responsibility for an entire metering set-up.

An examination of Commercial Orifice Fittings will bring to light many advantages, state the manufacturers. The nuisance and expense of by-passes are eliminated entirely, and there is a decided saving in space. The threaded elevator lift permits lowering or lifting of orifice plates regardless of line pressure, without shutting down the line and with complete safety to the operator. Additional features such as the accurate centering of orifice plates and elimination of set screws in pressure areas, also are important.

Houston Oil Field Material Company Opens Port Lavaca Store

Houston Oil Field Material Company, Houston, Texas, announces the opening April 20 of a branch store at Port Lavaca, Calhoun County, Texas Gulf Coast, to serve the operators in this new field. This new store will carry not only the complete line of oil country supplies, but will stock the numerous specialties on which HOMCO has exclusive distribution in the Gulf Coast territory. The company's fishing and cutting tool service also is available through this new store, as through other HOMCO stores throughout the southwest.

Kibele Appoints Oklahoma-Kansas Sales Representative

Frank R. Gunn of Oklahoma City now is sales representative of Kibele Manufacturing Company in Oklahoma and Kansas. He will represent the company's full line of equipment including tubing catchers, swabs and pistons.

W. J. Jackson Joins Gas Power-Incorporated

W. J. Jackson, who has been petroleum engineer in the Gulf Coast division for Humble Oil & Refining Company, has resigned his position to accept a position as sales engineer for gas and air-lift equipment with Gas Power-Incorporated, Houston, Texas.

Three New Directors Named By J. & L. Stockholders

Three new directors were elected at the annual meeting of stockholders of Jones & Laughlin Steel Corporation April 23, one to fill a vacancy, and two to occupy the additional directorships created by action of stockholders at the meeting. The new members of the board are Dwight Clark, William B. Todd, and F. E. Fieger. Mr. Clark is treasurer of the Phillips Properties, Inc., owned by members of the Laughlin family.

William B. Todd was elected vice president as well as a director. He has been general manager of the corporation since 1931. F. E. Fieger, who since 1929 has been general manager, was made a director, a member of the executive committee, and vice president in charge of manufacturing operations.

Lukens Steel Company Moves New York City Offices

Lukens Steel Company, Coatesville, Pennsylvania, has announced the removal of its New York City offices to Suite 2714-15, Chrysler Building, 405 Lexington Avenue.

R. Y. MacIntyre Now With Link-Belt in Dallas Office

Announcement has been made by Link-Belt Company that R. Y. MacIntyre, who has served as company representative at Memphis, Tennessee, since 1932, has been transferred to the company's district office and warehouse at Dallas, Texas, where he will assist E. G. Wendell, local manager. MacIntyre has a wide acquaintance throughout the south.

FRANK S. ARGOOD of Cal-Tex Oil Company of California has returned to headquarters at Los Angeles from Texas where he drilled a wildcat, and he lost no time in starting two new wells at Long Beach .

New Equipment for the Field

Machinery .... Tools .... Catalogs .... Books

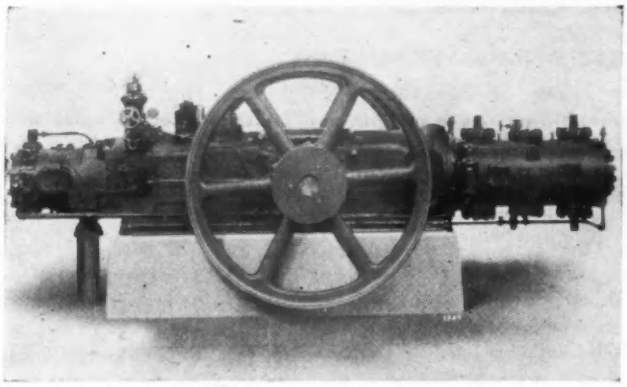
▼ ▼ ▼

Pumping Engine

COOPER-BESSEMER CORPORATION

Cooper-Bessemer Corporation, Mt. Vernon, Ohio, has announced the development of new uses for its pumping engines. Two sizes of pumping engines have been transferred from the usual category of single-purpose units, and have been made equally adaptable for pneumatic lift, repressuring and general power service in oil fields.

When a Type G-AG or Type G-AO pumping engine is ordered for well pumping on the beam or for central power pumping, the user has the option at a slight additional cost of specifying a "compressor main frame." In specifying this frame he prepares the unit for a possible future transition



Cooper-Bessemer Converted Pumping Engine

to pneumatic pumping. Though the engine may be placed initially in conventional pumping duty, the change into a direct-driven compressor unit may be effected at any later time by the simple addition of compressor cylinders and driving parts.

Any units thus transformed in the field will be identical with the Type G-MG and Type G-MO compressor units now available from the factory in completely assembled form. The smaller unit is rated 35 to 50 horsepower. The larger compressor unit is rated 45 to 65 horsepower. They can be equipped for any requirement of gas or air compression within its power range by using different compressor cylinders. While all parts such as power cylinder and head, piston, connecting rod and crosshead, mainshaft and fly wheels are interchangeable with standard pumping engines, the main frames and compressor drive parts have been designed to give balanced operation when operating as compressor units.

Pick-Up Pumping Unit

BYRON JACKSON COMPANY

Byron Jackson Company, Berkeley, California, has announced a centrifugal pick-up pumping unit that was designed especially for use by pipe line companies. It is suitable for service wherever a compact and portable unit is required. In developing the "Pup" (Pick-Up-Pump) for oil field work, the company incorporated a number of suggestions made by Wade R. Reed, Sinclair Prairie Pipe Line Company, and John M. McGregor, McGregor Engineering Company. The primary application of this new type pick-up pump is for pipe line service, but it may be used for water, fire protection and other duties of a gasoline-driven, medium-pressure pump.

The pump is a specially designed Byron Jackson, two-stage, centrifugal model, with an increased gear built integral with the pump. The gear housing and shaft centers are designed so that different gear ratios may be used to meet requirements. Two suction nozzles beneath and two discharge nozzles above are provided, all nozzles being on the same side of the pump. Connecting piping is supplied so that the two stages of the pump may be run either in series or parallel. The pump delivers up to 900 barrels per hour, and is capable of pressures in excess of 350 pounds per square inch. A flexible coupling is supplied.

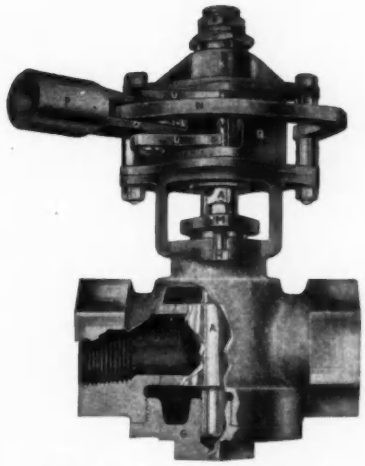
Engines recommended are Buda, Ford V-8 (commercial), Hercules and Waukesha. The units are supplied complete with al necessary accessories.

The complete units are assembled by and marketed through the McGregor Engineering Company, Tulsa, Oklahoma.

Plug Valve

GOLDEN-ANDERSON VALVE COMPANY

Golden-Anderson Valve Company, Pittsburgh, has introduced a new type plug valve that is particularly adapted for use on steam, air, gas and liquid lines. The manufacturer claims this valve will insure a smooth and continuous pipe opening in open position, and a securely sealed shutoff. Its construction for control of plug position, on opening and



Golden-Anderson Plug Valve

closing, eliminates rotating wear on the plug and seat rings, it is claimed. No lubrication or special attention is required.

The valve is available in two-way, three-way and four-way designs; in bronze, iron, steel or other metals for given requirements. It may be had in screwed or flanged ends, and in sizes from one-half inch up for all service pressures. It can be equipped with lever or handwheel, or can be

arranged for automatic operation in the larger sizes with a control cylinder and pilot-valve mechanism.

The operating handle is connected with the valve plug through a toggle linkage and linkage control in such a manner that prior to the beginning of a turning movement, from either full-open or full-closed, the toggle is straightened out and the plug is moved axially away from its seat. The turning then takes place without friction between plug and seat until the new full-open or full-closed position is reached. At this point, a stop prevents further rotation while continued movement of the handle exerts pressure through the toggle to seat the plug against the seat rings, and locks the valve from further movement until the handle is again manipulated.

New Oil Pipe Line Book Written by R. Van A. Mills

R. Van A. Mills, petroleum engineer, New York, has completed the writing of a new book entitled "The Pipe Line's Place in the Oil Industry."

This book is a compilation and analysis of information upon crude oil pipe lines. The greater part of it is not original, much of the material having been obtained from the experience and writings of many authorities. In conclusion the author states that integrated oil companies, more particularly the pipe line units of these companies, have been subjected to much unthinking and unwarranted criticism and attack, and that there is no evidence of monopoly, discrimination, unreasonable tariff rates, or unfair practices revealed in a thorough study. In addition to discussing these important present day pipe line problems the book contains a discussion of technical pipe line practices.

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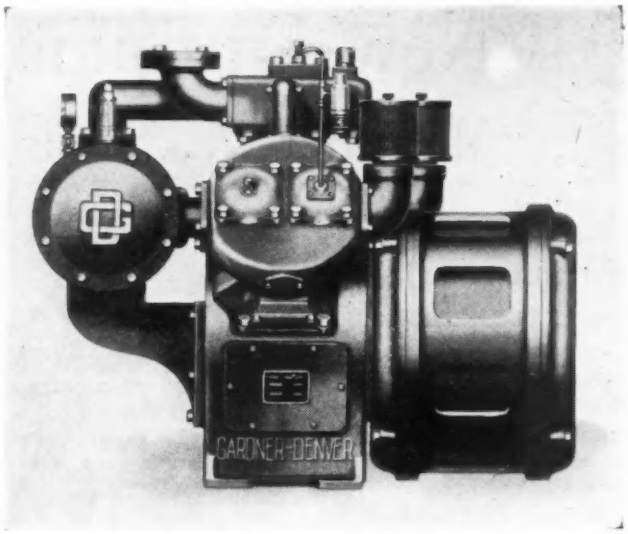

Gardner-Denver Compressor

Air Compressor

GARDNER-DENVER COMPANY

Gardner-Denver Company, Quincy, Illinois, has introduced a new series of three-cylinder air compressors that are available in sizes ranging from 113 to 194 cubic feet per minute displacements. The compressors combine a number of unusual features of design, the manufacturer claims.

One of the most distinctive features of the new compressor is the use of two small, low-pressure cylinders, instead of one large one. This results in lower wall temperature with better lubrication. The two-stage construction with water-cooled cylinders and intercooler assure high efficiency, it is claimed. A forced feed lubrication system is used, oil being delivered to the bearings by a plunger pump. Pistons and cylinder walls are lubricated by the oil spray of the crank pin. The compressor may be run in either direction.

The compressor is recommended for oil field and refinery use.

Gage Makers and Testers Affected By New Sucker Rod Specifications

Stipulations on news sucker rod gages adopted at the Pittsburgh, Pa., meeting of the American Petroleum Institute in May, 1934, have been published in revised Supplement 1 of the fifth edition of API Standards 11-B, "API Sucker Rod Specifications."

Supplement 1 has been revised as March, 1935, and replaces the suplement issued in December, 1934. It was necessary to reissue the supplement to include additional explanatory notes, and a complete list of these and of other changes made in the new edition are printed on the second page.

According to Carl A. Young, secretary of the Institute's Division of Production, virtually all the changes affect only gage makers and gage testing agencies. However, paragraph 6-B, page 13, has been augmented by a statement regarding wear allowance on working gages. This change applies to gage users.

Squeaks *from the* BULL WHEEL

A revival service was being held, and one of the partners in a fuel concern had joined the church. He tried to get his partner to do likewise.

"I can't do it, John," replied the partner, when his insistence became irksome. "Who'll do the weighin' if I join?"

During the big dust storm, recently, some wag wrote the following bit of doggerel in the dust of a plate glass window of a defunct bank in Western Kansas.

"Ashes to ashes and dust to dust,
The men folks raved and wimmin cussed.
Take it and like it; in God we trust."

A southern judge was perplexed over the conflicting claims of two negro women, each of whom asserted that a certain cute little black baby belonged to her. Finally, the judge thought of Solomon, and told the two women that he would divide the baby in two and give each of them half. They were so shocked that they both screamed:

"Don't do dat, boss. You kin keep him yourself."

He—You should see the new altar in our church.

She—Lead me to it.

"Auntie they made me draft clerk at the bank today."

"Oh, that's nice; what do you do—open and shut the door?"

Abie and Rebecca took little Moses to a picture show. The usher warned them that unless the baby kept quiet they would have to leave and get their money back.

Halfway through the feature, Abie turned to Rebecca and whispered: "Vell, vot do you t'ink of it?"

"Rotten," replied Rebecca.

"Vell," said Abie, "pinch de baby."

"Did that sailor attempt to kiss you last night?"

"Why mother, you don't think he came all the way from the battleship Saratoga just to listen to our radio, do you?"

"Your son has a great thirst for knowledge, madam. Where does he get it?"

"He gets the knowledge from me and the thirst from his father."

Do you really think the devil has horns and hoofs?

No. If he had, the meat packers would have got him long ago.

An Erie shopman had been drawn on a federal grand jury, and didn't want to serve. When his name was called he asked the judge to excuse him. "We are very busy at the shops," said he, "and I ought to be there."

"So you are one of those men who think the Erie couldn't get along without you," remarked the judge.

"No, your honor," replied the shop man. "I know it could get along without me, but I don't want it to find it out."

"Excused," said the judge.

"Does any ob de brudders know of Brudder Jones employing profane language?" asked the chairman of the committee of the colored church before whom the preacher had been summoned on charges.

"Yassir, Brudder White, I does," said Brother Brown, and he proceeded to tell in characteristic detail of the funeral of a cripple. The deceased had been so badly crippled that when his body was placed in the casket, his knees stuck up and it was impossible to close the lid. Finally, it was decided that the way out was to tie his knees down. Accordingly, some cord was obtained, the gruesome task performed, and the lid closed. During the service in church, however, the cord broke, the released knees shot up, and the lid of the coffin flew off. With one accord, the audience made for the door, with Brother Brown in the lead. After putting a couple of miles between himself and the gymnastic corpse, he sat down, exhausted, by the roadside.

Soon there hove in sight the colored preacher, splitting the air with express train speed.

'And as he passed," said Brother Brown solemnly, "I heard him say: 'Hot damn dese churches what has only one door.' "

It says here they have found a sheep in the Himalaya Mountains that can run 40 miles an hour.

Well, it would take a lamb like that to follow Mary nowadays.

Two little boys were talking about the President. One of them said: "My father thinks he has done a lot of good."

The other little boy replied: "Oh, I don't know—he hasn't closed the schools yet."

Father (admiring his recently born heir)—That fellow will be a great statesman one of these days.

Mother—Oh, Charles, dear, do you really think he will?

Sure of it. Look how easily he wriggles out of everything.

"It says the man was shot by his wife at close range."

"Then there must have been powder marks on the body."

"Yes; that's why she shot him."

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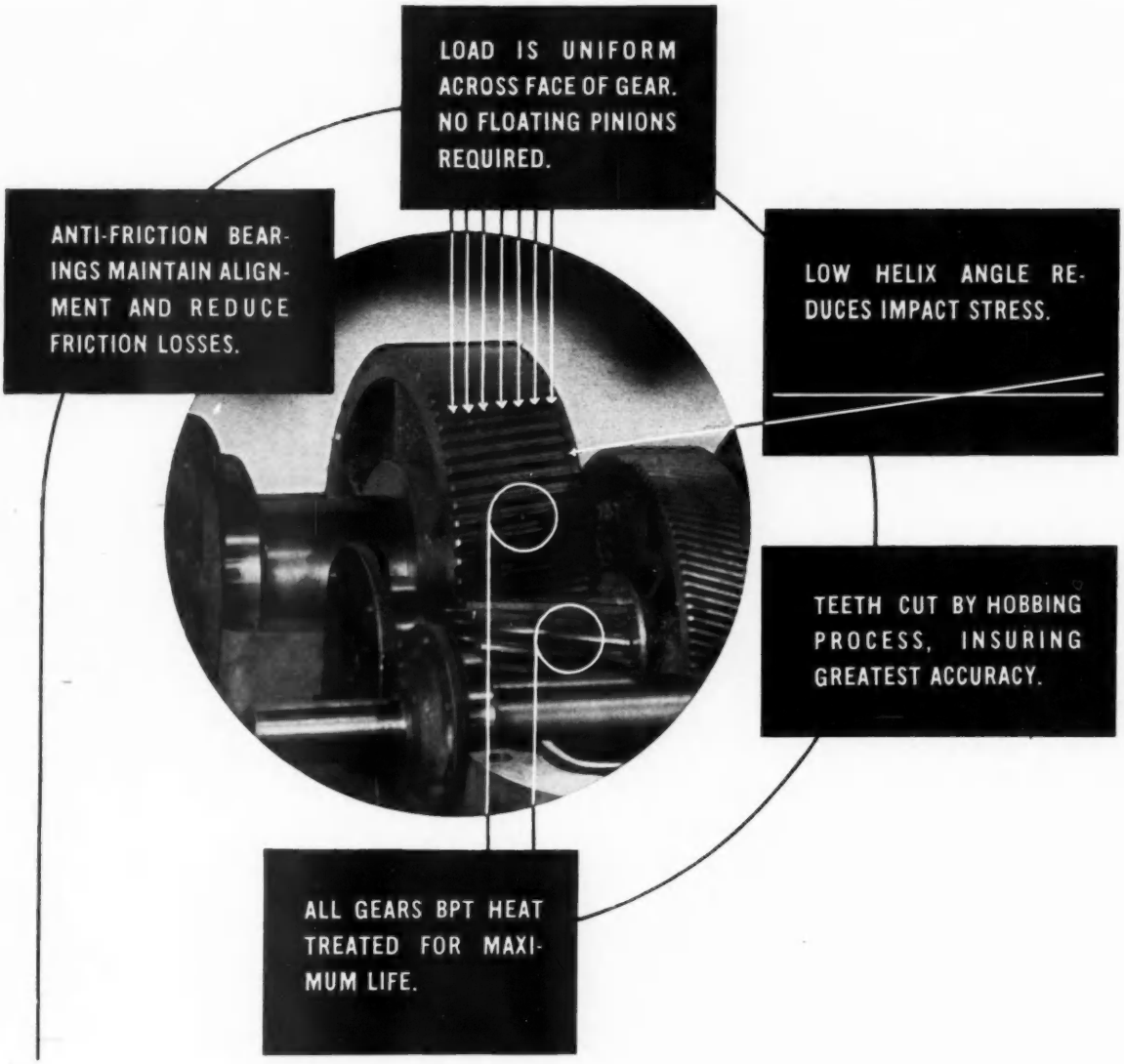
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